ANALYSIS OF ICZM PRACTICE IN REGION OF ISTRIA (CROATIA)

(Final)

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INTRODUCTION

The Republic of Croatia is an independent, sovereign, and democratic country, which won its independence on 8 October 1991. The State, with the area of 56 594 km^2, is situated in the South-eastern part of Europe, surrounded by Alps in the West, Sava and Drava rivers in the North and East and the Adriatic Sea in the South. Surface area of coastal sea is 31 067 km^2. The coastal sea consists of interior sea waters (from coast to basic line) and territorial sea (12 nm from the basic line in the open sea direction), according to the Coastal Sea Act from 1987.

The length of the sea coast is 5835, 3 km (1777, 3 km-30, 5% mainland; 4058 km-69, 5% islands). The Croatian islands include almost all islands on the east coast and the central area of the Adriatic, making the second largest archipelago in the Mediterranean. There are 1 185 of them, geographically divided into 718 islands, 389 rocks and 78 ridges (48 are inhabited).

With regard to the maritime border between Croatia and Slovenia, the counties have not yet reached an agreement on the exact delimitation of this sea area along the Bay of Piran. An Arbitral Tribunal has been set up to solve this matter.

Territorial organizations in the Republic of Croatia are counties, towns, municipalities, and settlements. The Croatian coastal area belongs to the country's most valuable economic and natural assets. According to the results of Census 2011, (Croatian Bureau of Statistics) Croatia has 4.284.889 inhabitants with the average density of 76 inhabitants per km^2. There are 7 coastal counties (Istria, Primorje-Gorski Kotar, Lika-Senj, Zadar, Šibenik-Knin, Split-Dalmatia and Dubrovnik-Neretva: 24 705 km^2) where lives 33% (1 411 935) of total population with population density of 57 inhabitant/km^2. The largest coastal towns are Pula, Rijeka, Zadar, Šibenik, Split and Dubrovnik.

The Region of Istria covers an area of 2812, 97 km2. Region surrounded on three sides by the Adriatic Sea, which influences significantly the climate of the Peninsula. The mountain belt-Ćićarija and Mount Učka, stretching in the direction north-south, makes the natural border of Istria with the hinterland.

Istria is located on the important transportation direction north-south, and thus is over the Adriatic a link between the central Europe and Mediterranean. The following important element in the territorial evolution of Istria is the link with the hinterland, and in this way with the Dannubian countries as well as the countries of Eastern Europe.

The Adriatic coast of the Croatian part of Istria articulated into two parts according to its traits:

- The western coast of Istria (from the mouth of the Dragonja river to the Kamenjak Cape) and
- The coast of the Kvarner and Rijeka Gulf

The western part is shallow, rocky coast that stretches in the direction NNW-SSE. A number of deep bays are distinguished the mildly indented west coast: the mouths of the Dragonja and Mirna rivers, namely the part of Piran and Tara coast, than the Lim canal and the part of Pula on the south.

The coast is more indented in the central part, so that nearby Poreč and Vrsar first islets and islands appear, and in the lower part the Rovinj group of twenty four islets and islands are distinguished. The Brioni islands distinguished on the south which consists of Big and Small

Brioni, and 12 smaller islets and reefs. The biggest depths are about 30-35 m; which is at the same time average depth of Gulf of Venice.
The coast of the Kvarner and Rijeka Gulf stretches in the direction SSW-NNE. In contrast to the west coast, this coast is steep, less indented, particularly the coast of the Rijeka Gulf. The biggest sea depth is 50-70 m.
The length of the coastline including islands and islets is 524 km.
The greatest part of the Peninsula (except its central part) is build of water-porous stones, therefore in Istria there are no big surface water currents. The longest river is the Mirna river (53 km), and then comes the Raša river (23 km) and the Boljunčica river (20 km). The medium annual water potential on mouths is for the Mirna 16m^3/s and for the Raša 12m^3/s. The water potentials of the Istria currents decrease in dry, summer mouths. The multifunctional artificial lake-the Butoniga accumulation of the area of 280 ha was created by the dam construction on the Butoniga river. The anticipated and planned purpose of the accumulation is water supply of the Peninsula in dry, summer periods, defence against flood and agriculture produce watering. In the Croatian part of Istria 860 running and mixture of running and salty water springs have found.
The Istria Region consists of 41 units of local self-government (10 towns and 31 municipalities). The population of Istria Region is 208.055 (2011.) which represents 4, 98 % of the population of the Republic of Croatia. The average population density is 74 people per km^2. The coastal part of the Region is more densely populated (116 people per km^2).

The major pressures on the coastal zone in the Republic of Croatia and Istria County are:

- Maritime transport
- Marine and coastal tourism
- Fisheries and marine aquaculture
- Coastal urbanisation
- Queries
- Energy generation

SECTION I: SECTORAL POLICIES IN EFFECT IN COASTAL ZONES

1. PRESERVING BIODIVERSITY

1.1. General principles

National legislation incorporated general provisions of the Protocol on Integrated Coastal Zone management in the Mediterranean (Articles 1-7):
-national programming documents
-legislation of nature protection and conversation, environmental protection, cultural heritage and physical planning

Croatia gave the interest to the nature protection and environmental sustainability, since the beginning of the road toward the European Union. In 2001 Croatia and the European Union signed the Stabilization and Association Agreement (SAA) that entered into force on 1st February 2005. As outlined in Article 103 on Environment, Croatia and the EU have committed to strengthen cooperation in combating environmental degradation and promoting environmental sustainability. The priorities of this Article include in particularly "the protection of the flora and fauna including forests and the conservation of biodiversity," "international Conventions in the area of environment to which the Community is a Party," "continuous approximation of laws and regulations to community standards," and "education and information on environmental issues and sustainable development. The medium-term priority was to continue work on transposition of the *acquis*, with particular emphasis on waste management, water quality, air quality, nature protection and integrated pollution prevention and control.

1.1.1 Preserving biodiversity

- **Preserving biodiversity (5b, 5d, 8-1, 8-3c)**

"The objectives of integrated coastal zone management are to (…) preserve coastal zones for the benefit of current and future generations" (5b) and to "ensure preservation of the integrity of coastal ecosystems" (5d).
"The Parties shall endeavour to ensure the sustainable use and management of coastal zones in order to preserve the coastal natural habitats, landscapes, natural resources and ecosystems" (8-1).
"The Parties shall also endeavour to ensure that their national legal instruments include criteria for sustainable use of the coastal zone. Such criteria, taking into account specific local conditions, shall include, *inter alia*, the following: (…) ensuring that environmental concerns are integrated into the rules for the management and use of the public maritime domain" (8-3c).

In Croatia, the protection of biodiversity harmonised with the EU legislation, by the:

- Convention on Biological Diversity (CBD)
- The Strategy and Action Plan for the Protection of Biological and Landscape Diversity
- Nature protection Act
- Regulation on Protection of Wild Taxa
- Regulation on Proclamation of the Ecological Network

The Convention on Biological Diversity (CBD) is a globally accepted fundamental document for the protection of biological diversity, establishing the conservation of biological diversity as an underlying international principle in the field of nature protection. It adopted in Rio de Janeiro in 1992 at the United Nations Conference on the Environment and Development. In the Republic of Croatia, the Convention **entered into force on 07. October 1996.** The signatory parties undertook to achieve the three objectives of the Convention:

-Conservation of overall biodiversity;
-Sustainable use of biodiversity components;
-Fair and uniform distribution of benefits ensuing from the utilisation of genetic sources

Croatia is one of the richest European countries in terms of biodiversity because of its geographical position at the crossroads of several biogeographically regions and its characteristic ecological, climate and geomorphologic conditions. These conditions in combination with various local traditions in the use of space, which have developed as a result of economic and historical circumstances, have also contributed to an exceptionally rich diversity of the landscape. Because of their particular value, protected areas (8.54 % of the total territory including the territorial sea) form the backbone of the protection of biological, landscape diversity as a whole, and represent the key points of the ecological network. The great diversity of terrestrial, marine, and underground habitats has resulted in a wealth of species and subspecies with a high number of endemics. The number of known species and subspecies in Croatia are 38.268, and they believed to actually number between 50.000 and 100.000.
Croatia is home to a considerable part of the populations of many species endangered at the European level. Based on the earlier estimate of the level of threat to the analysed plant, fungal and animal groups (vertebrates, butterflies, dragonflies, underground fauna, corals, ground beetles, stoneflies, vascular flora, lichen, and fungi) there are 2.235 endangered taxa on the red list. The most highly threatened are freshwater fish, then reptiles, amphibians, dragonflies and birds. Protected native domesticated taxa are plant varieties or animal breeds that have evolved as a result of traditional breeding and form part of the Croatian natural heritage.

The Strategy and Action Plan for the Protection of Biological and Landscape Diversity (OG 143/08) of the Republic of Croatia is the fundamental document for nature protection, laying down long-term objectives and guidelines for the conservation of biological and landscape diversity and protected natural values, and methods for implementation thereof, in accordance with the overall economic, social and cultural development of the Republic of Croatia.
Within the meaning of the **Nature Protection Act** (OG 70/05, 139/08, 57/11), nature is the overall biological and landscape diversity. Nature and natural assets are of interest for the Republic of Croatia and are beneficiaries of its special protection.
Croatian Red List of Threatened Species into the Republic of Croatia includes within the analysed groups (vertebrates, butterflies, dragon-flies, cave fauna, vascular plants and fungi) 1 131 threatened taxa. The **Regulation on Protection of Wild Taxa** (OG 99/09) protected all these species in category strictly protected.
The freshwater fish considered being the most and the vascular plants the least endangered taxonomic group.

According to the Nature Protection Act, strictly protected species comprise 809 plant taxa (including 37 species listed on Annex II of the Habitat Directive) and protected species include 331 taxa.

In 2007, the State Institute for Nature Protection developed the expert base proposal for the Regulation on the proclamation of the ecological network (**Regulation on Proclamation of the Ecological Network**). It adopted in October 2007. Pursuant to the NATURA 2000 network of the European Union, the area of the ecological network in Croatia divided into internationally important areas for birds and areas important for other wild taxa and habitat types. For each area, the conservation objectives are outlined, i.e. a list of species and habitat types given for which the areas was included in the ecological network and for which the impact of any interventions in the area must be considered during any acceptability assessments of plans, programmes and interventions for the ecological network. Furthermore, guidelines for protection measures given for each area of the ecological network and apply to all natural and legal persons using natural assets, or carrying out works and interventions in the areas of the ecological network. Croatia's National Ecological Network covers 47% of the terrestrial land area and 39% of the marine territory, in addition to two corridors: the sea turtle corridor and the Palagruža-Lastovo-Pelješac corridor (important for bird migrations).

The Regulation on Proclamation of the Ecological network proclaims the ecological network of the Republic of Croatia with the system of ecologically important areas and ecological corridors with conservation objectives and guidelines for protection measures which are aimed at maintaining or establishing a favourable status of threatened and rare habitat types and/or wild taxa.

- **Sustainable use of natural resources (5c)**

"The objectives of integrated coastal zone management are to (…) ensure the sustainable use of natural resources, particularly with regard to water use" (5c)

The **Environment Protection Act, the Waters Act** and their related regulations, as like as the **Agricultural Land Act** and the **Act of forest**, prescribed and regulated sustainable use of natural resources.

General measures for conservation of sea and sea-shore and habitat complexes (estuaries, lagoons and large shallow inlets and bays) are:

-to preserve favourable physical and chemical properties of sea water or to improve them where deteriorated;

-to provide at least secondary purification of urban and industrial water flowing into the sea;

-to preserve favourable configuration and structure of sea bottom, shore, coastal areas and river mouths;

-to preserve biological species important for a certain habitat

-to conduct an appropriate system of management and surveillance of ship ballast waters, so as to prevent spreading of invasive alien species through ballast waters;

-to prevent unlawful construction of buildings on sea-shore and to improve an unfavourable state wherever possible;

-to remove invasive alien species;

-to ensure constant mixing of salt and fresh water in estuaries, and preserve favourable physical and chemical properties of water in estuaries, lagoons and large shallow inlets and

bays or to improve them when they are unfavourable for conservation of habitats and their important biological species;
-to preserve muddy, sandy, gravel and rocky coast in their natural form with natural vegetation and restore devastated areas wherever possible

Within the Adriatic river basin district, all the areas designated as eutrophic, areas serving for abstraction of water intended for human consumption and areas of protected nature shall constitute a sensitive area (**Decision on the designation of sensitive areas, OG 81/10**). The map of the areas of this Decision is set out in the Annex which forms an integral part of this Decision, in the scale 1:25 000, with its original copy kept in Croatian Waters, and shall be delivered upon request and free of charge to state administration bodies, bodies of local and regional self-government units and legal persons vested with public authority.

The Croatian legislation defines the "maritime domain" as public property, which extends to one part of the state territory on the mainland, to the inner sea water and territorial sea, as well as to the corresponding seabed and subsoil, and has specific legal, functional, and economic characteristics.
The management of the maritime domain and its adequate protection, maintenance and economic exploitation can be secured only by a comprehensive application of regulations concerning maritime domain and ports, and regulations in the area of development, urban planning, construction, environmental protection, mining, tourism, marine fishing, nature protection and protection of cultural monuments, as well as through an efficient inspection and administrative supervision. It is necessary to have a comprehensive approach to the planning and management of the coastal area, while respecting the specifics of maritime domain as a public good. The maritime domain, belongs to all people and is therefore of special interest to the Republic of Croatia.

- **Preventing damage to the environment and restoration (6j)**

"The Parties shall be guided by the following principles of integrated coastal zone management: (…) Damage to the coastal environment shall be prevented and, where it occurs, appropriate restoration shall be effected" (6j).

The general principle of preventing damage to the coastal environment and eliminating the eventual consequences prescribed the Environmental Protection Act, Nature Protection act, the Ordinance on Measures for Remediation of Environmental Damage and Restoration Programmes and the Agreement on the *sub-regional contingency plan for prevention of, preparedness for and response to major marine pollution incidents in the Adriatic sea,* between the Government of the Republic of Croatia, the Government of the Republic of Italy and the Government of the Republic of Slovenia.

The Ordinance on Measures for Remediation of Environmental Damage and Restoration Programmes (OG 145/08) prescribes measures for remedying environmental damage and imminent threats of environmental damage, types, scope and methodology for preparing restoration programmes, issuing of approvals for restoration programmes and other related issues. A remedial measure is a specific activity and procedure which must be conducted in order to remedy environmental damage and imminent threat of damage, which occurred due to a sudden event, or as a result of natural phenomena or as a consequence of

performing dangerous or other activities including specific operations during the performance of the activity. In general, the study lays out measures for removing imminent threats of damage, and if assessed as necessary, in case of minor environmental damage, the person who ordered the implementation of emergency measures may also prescribe the establishment of other measures for the remediation of environmental damage.

The competent public administration body shall, by proving the essential information, notify the public on measures undertaken for the purpose of remedying environmental damage pursuant to the Act and the regulation governing provision of information to the public and public concerned in environmental protection issues, that is, pursuant to the special regulation governing the protection of the specific environmental component or protection from environmental burdens. The restoration programme shall contain chapters on: company and operator, location of the polluted area, population in the immediate surroundings of the polluted area, economic activities which are affected or may be affected by the pollution, source of environmental pollution or origin of pollutants, identification of potential domino effects, determination of the level of danger which the pollution poses for human beings and the environment, assessment of probability and projection of pollutant movement trend, assessment of available data used as the basis to define the extent and characteristics of pollution, identification of unknown variables, or obstacles to defining the final extent of pollution or restoration, review of present investigation works and necessity of further investigation works, proposals for restoration methods, assessment of acceptability of the proposed alternative restoration solutions in relation to environmental impact, measures for restoring the quality of the environment to the baseline condition or measures for the improvement of the current state of environmental pollution, cost benefit analysis in relation to specific restoration methods, order of implementation of restoration methods and deadlines for the implementation of measures or the restoration programme, costs of implementation of the restoration programme, proposal for environmental monitoring on the polluted site after restoration, plan for the provision of resources including compensation costs for reduced value and damage to the environment. The restoration programme shall also contain appropriate annexes or documents related to data from the programme or in accordance with the requirements of the competent public administration body. If a special regulation governing the protection of a specific environmental component and protection from a burden prescribes the mandatory content of a restoration programme for that environmental component or protection from the burden, then the restoration program shall also contain requirements in accordance with that regulation which are not included in the mandatory content of the restoration programme prescribed by this Ordinance. The company shall obtain the approval of the Ministry for the restoration programme prepared in line with the Environmental Protection Act and provisions of this Ordinance. The approval may not issue if the restoration programme is not in compliance with valid physical planning documents which are in force on the site where the environmental damage has occurred. The Ministry shall inform the public on the issued approval in line with the Act and the regulation governing provision of information to the public and public concerned in environmental protection issues.

- ✓ **In practice**

According to Physical Plans Region of Istria (article 128), next measures will be implement in sphere of wholesome protection of water source zones, zones of drainage, and running waters:

-in the period of 2002-2010, and in accordance with the law of waters, it is necessary to improve the quality of all surface running waters of state and local significance, or their parts, to the level which is proscribed by the Government plan for water protection, and in non existence of County plan, even for local running waters, in accordance with this plan. Based on a map of jeopardized water sources and wells (those that are been used and planned ones), to start making recovery programs for all subject in II water protection zone. The vulnerability map of subterraneous waters will be making in accordance with UNESCO/International Association of Hydro geologist's recommendations. For the evaluation of vulnerability the next parameters will be analysing: the porosity of the boulder, the thickness of the surface cover, the urbanization of the space and agricultural function. This methodological approach should be applying on all area of Istria, especially in the area of influx, which lies on rocky surfaces, 2010 at the most.

1.1.2 *Preserving cultural heritage*

- **Preserving cultural heritage (13-1)**

"The Parties shall adopt, individually or collectively, all appropriate measures to preserve and protect the cultural, in particular archaeological and historical, heritage of coastal zones, including the underwater cultural heritage, in conformity with the applicable national and international instruments" (13-1).

Croatia has an established system of measures for the protection of cultural heritage. The Act on the Protection and Preservation of Cultural Heritage governed protected area of cultural heritage.

- **In situ conservation (13-2)**

"The Parties shall ensure that the preservation *in situ* of the cultural heritage of coastal zones is considered as the first option before any intervention directed at this heritage" (13-2).

The Act on the Protection and Preservation of Cultural Heritage and the Cultural Heritage Register prescribed in situ conservation of the cultural heritage.

- **Conserving underwater cultural heritage (13-3)**

"The Parties shall ensure in particular that elements of the underwater cultural heritage of coastal zones removed from the marine environment are conserved and managed in a manner safeguarding their long-term preservation and are not traded, sold, bought or bartered as commercial goods" (13-3).

Underwater archaeological localities in line with the Cultural Heritage Registry have the priority in terms of implementation of the **Contingency Plan for Accidental Marine Pollution.** The list of underwater archaeological localities is kipping at the Headquarters' command. There published on the webpage of the central state administrative body competent for the sea and it updated annually.

✓ **In practice**

According to Physical Plan Region of Istria (Article 9) the delimitation of protected cultural heritage areas done by determining the border in procedure of issuing the resolve of determining the characteristics of, on which it can be determined the smaller and the wider area of protection with different measures of protection of cultural heritage. The areas and locations anticipated by this plan of protection of cultural heritage refers to: the urban entity, semi urban entity, rural entities, archaeological and hydro archaeological areas, ethnographical zones and memorial areas and individual structures and complex of sacral, civil and fortification character. Besides the areas quoted here, by the plan are determined areas for research and potential protection of entities or parts of agricultural landscapes of special importance for state and county. The areas and locations are determined in graphical map no.3.2 of the Physical Plan Region of Istria. 20 archaeological isolated underwater sites existing in the Region of Istria.

1.1.3 *Preserving landscapes*

- **Preserving coastal landscapes (5d, 8-1)**

"The objectives of integrated coastal zone management are to (…) ensure preservation of the integrity of coastal ecosystems, landscapes and geomorphology" (5d).

"(…) the Parties shall endeavour to ensure the sustainable use and management of coastal zones in order to preserve (…) landscapes (…)" (8-1).

The Republic of Croatia is a signatory to the **European Landscape Convention** (Florence, 2000), which entered into force on 1st March 2004. Under the Convention, Croatia undertook the obligation of implementing landscape conservation through landscape protection, management and planning instruments. One of the main activities towards achievement of this goal is development of the Landscape Basis of Croatia, which will identify the characteristics and state of landscape, establish their specific properties and carry out their classification.

Strategic objectives are:

- Ensure landscape conservation through landscape protection
- Management and planning instruments that based on identification and the state of landscape characteristics and on the completed process of landscape inventorying and classification.

The Nature Protection Act regulates landscape planning in the State. **Pursuant to Article 16, paragraphs 1 and 2 of the Nature Protection Act,** an important landscape is a natural or cultivated tract of land distinguished by major landscape value and biological diversity or cultural-historical value, or a landscape distinguished by unique conserved features characteristic of a particular area designated for relaxation and recreation or a particularly valuable landscape established pursuant to this Act. Projects and acts impairing the features for which the important landscape designated as such shall not be permit.

At the State level, the State Institute for Nature Protection, among its other specific roles, proposes the plans for protected natural areas and National Strategies for improving the management and protection of the landscape.

- **Adopting specific instruments (11-1)**

"The Parties (…) shall adopt measures to ensure the protection of coastal landscapes through legislation, planning and management" (11-1).

Pursuant to Article 84, paragraphs 1 and 2 of the Nature Protection Act, landscapes classified according to their significant and characteristic features into landscape types reflecting the diversity of natural and cultural heritage. Significant and characteristic landscape features shall within the meaning of this Act mean parts of nature characteristic of particular landscape types or artificial landscape components having natural, historical, cultural, scientific or aesthetic value.

- ✓ **In practice**

Physical Plan Region of Istria defines the general structure of development and the relationships with bordering regions. It defines the regulations for local planning and guidelines for the valorisation and protection of the landscape (in both written and graphic documentation), defining the management structure within protected natural areas. The Physical Plan identifies the values of the landscape and introduces the monitoring system for the control of natural areas and for the forecasting of risks that may compromise natural qualities. According to Article 10 of Physical Plan Region of Istria the delimitation of areas of special value-landscapes determined by this plan on graphical map no. 3.3 of that plan, and more specifically determined by area plans of development of cities and municipalities. The Istria important landscape, according to article 16 of the Nature Protection Act, presented in graphical map no. 3.1 of the Physical Plan. The „Natura Histrica"is the competent regional public entity for administering important landscape.

1.2. Preserving vulnerable ecosystems

1.2.1 *Ecosystems covered by the Protocol*

- **Adopting measures for the preservation of marine species and habitats (10-2a)**

"The Parties (…) adopt measures to ensure the protection and conservation, through legislation, planning and management of marine and coastal areas, in particular of those hosting habitats and species of high conservation value" (10-2a).

The Nature Protection Act and the **Ordinance on habitat types, habitat map, threatened and rare habitat types and habitat type conservation measures** regulated integrated protection and management of habitats in Croatia.

The Nature Protection Act defines a habitat as the unique functional unit of an ecosystem, defined by its geographical, biotic, and abiotic features. All habitats of a given type constitute a single habitat type. Habitat types described in the habitat classification systems. Like other European countries, Croatia has developed its National Habitat Classification (NHC) in order to emphasize the habitat diversity of its territory and certain specific characteristics, such as habitats related to marine environments, underground and karst areas. By means of a key for conversion of one habitat classification into another, it is possible to convert the national classification into any European standard. The Croatian National Habitat Classification defines the following main habitat classes, with each divided into four levels of habitat types:

-Inland surface water and ***wetland habitats***;

-Inland non vegetated and sparsely vegetated habitats;

-Grassland, bogs, fens and tall forb habitats;
-Scrub habitats;
-***Forest habitats***;
-Coastal habitats;
-Marine habitats;
-Undergrounds habitats;
-Cultivated non-forested land and habitats with weeds and ruderal vegetation;
-Constructed and industrial habitats;
-Habitat complexes

Pursuant to Article 57, paragraph 2 of the Nature Protection Act, habitat types threatened if they are not in a favourable state and/or if there is a threat they may disappear. A habitat type is in a favourable state if its natural distribution area and the area it covers are stable or increasing and it is likely in the near future that it will retain the specific structure and function necessary for its long-term survival and if the favourable state of the significant biological species within ensured. Annex II of the Ordinance on Amendments to the Ordinance on habitat types, habitat map, threatened and rare habitat types and measures for conserving habitat types (September 2009) gives the list of rare and threatened habitat types.
The map of habitat types is the foundation for the process of development of the ecological network. In Croatia, all habitat types larger than 9 hectares have been mapped using satellite images on a scale of 1:100 000. This map has enabled the analysis of distribution and coverage of habitat types in Croatia.
The Habitat Directive requires that a functional network (NATURA 2000) of important sides shell be establishing for threatened habitat types of the European Union.

The Ordinance on habitat types, habitat map, threatened and rare habitat types and habitat type conservation measures and Ordinance on amendments to the ordinance on kinds of habitat types, habitat map, threatened and rare habitat types and on measures for conservation of habitat types (OG 07/06,119/09) it list all the habitat types protected under the Habitats Directive, Resolution no.4 (1996) of the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention), and those threatened at the national level.
Threatened and rare habitat types of national and European importance represented within the territory Republic of Croatia listed in Annex II, which is an integral part of this Ordinance. Sites hosting threatened and rare habitat types are ecologically important sites in terms of Article 58 of the Nature Protection Act, and sites hosting threatened and rare habitat types referred to in Annex IIB are ecologically important sites in terms of Article 60 of the Nature Protection Act.
The Nature Protection Act, carry out for special management and protection measures for habitat type's sites designation as protected sites and/or parts of the Ecological Network of the Republic of Croatia, or parts of the NATURA 2000 ecological network.

- **Adopting measures for the preservation of coastal forests and woods (10-3)**

"The Parties shall adopt measures intended to preserve or develop coastal forests and woods located, in particular, outside specially protected areas" (10-3).

General measures for conservation of threatened and rare habitat types according to Ordinance for *Surface inland waters and marsh habitats, Forests, Sea and sea-shore and habitat complexes (estuaries, lagoons and large shallow inlets and bays)* are:
-to remove invasive alien species from all water, coastal and marsh areas;
-forest management have to be conducting in line with forest certification principles;
-during the final clearing of major forest surfaces, minor surfaces have to be leave uncleared, wherever possible and appropriate;
-in forest management to preserve forest clearings (meadows, pastures, etc.) and forest edges to the maximum extent;
-forest management, to ensure prolongation of harvest maturity for indigenous species of trees, taking into consideration the physiological life-span of individual species and health conditions of a forest community;
-in forest management, use of chemical plant protection agents and biological control agents shall be avoided and use of genetically modified organisms shall be prohibited;
-to preserve biological species important for a certain habitat;
-to provide a constant proportion of mature, old and dead (standing and felled) trees, particularly trees with nest holes, in all forests;
-in forest management, to ensure appropriate care for conservation of threatened and rare wild taxa and systematic monitoring of their status; that endangered and rare non-forest habitat types are not further endangered thereby;
-to remove invasive alien species from all forest areas;
-to preserve a favourable water regime in alluvial forests;
-to preserve favourable configuration and structure of sea bottom, shore, coastal areas and river mouths;
-to remove invasive alien species;
-to preserve muddy, sandy, gravel and rocky coast in their natural form with natural vegetation and restore devastated areas wherever possible

- ✓ **In Practise**

According to Physical Plan Region of Istria (Article 37-39) forest are divided into three categories:

- Forest as an economical resources are representing the largest part of entire forest resources, and they are intended solely for economical usage (using woods for building material or heating, for hunting and game breeding, foraging the forest fruits).
- Protected forest are representing the smaller part of forest resource, and their basic intention for them is protection and recovery of imperilled areas (fire devastated areas, surfaces exposed to erosion, the improvement of micro climatic features of the area).
- The forest for special purpose are territorially delimited from the rest of the forest resource, and are by the Physical Plan, predicted inside the coastal area and in area of national park and nature parks, and their basic purpose is maintaining the ecological values for and specific (protected) habitats, purpose for recreation, and to

elevate the scenery. The planning of mentioned operations is possible with special conditions of forest usage proscribed by the Ministry of forestry and agriculture.

- **Preserving wetlands and estuaries (10-1)**

"(…) The Parties shall: (a) take into account in national coastal strategies and coastal plans and programmes and when issuing authorizations, the environmental, economic and social function of wetlands and estuaries; (b) take the necessary measures to regulate or, if necessary, prohibit activities that may have adverse effects on wetlands and estuaries; (c) undertake, to the extent possible, the restoration of degraded coastal wetlands with a view to reactivating their positive role in coastal environmental processes" (10-1).

The Nature Protection Act protected coastal wetlands and estuaries. The Ramsar List of the Convention on Wetlands contains Lower Neretva River Course, as wetland habitats of international importance.

- **Preserving and rehabilitating dunes (10-4)**

"The Parties undertake to preserve and, where possible, rehabilitate in a sustainable manner dunes and bars" (10-4).

There are no dunes in Croatia.

- **Preserving the island environment (12)**

"The Parties undertake to accord special protection to islands, including small islands, and for this purpose to: promote environmentally friendly activities in such areas" (12a).

"The Parties undertake to accord special protection to islands, including small islands, and for this purpose to (…) take into account the specific characteristics of the island environment and the necessity to ensure interaction among islands in national coastal strategies, plans and programmes and management instruments, particularly in the fields of transport, tourism, fishing, waste and water" (12b).

Islands are Croatia's national wealth, together with all of their fixed assets, and it is having special national, historic, economic, and ecological importance and as such is of interest to the Republic of Croatia and enjoys its special protection. **The Islands Act** based upon the principles of the **National Islands Development Programme** and it provides for the management of island development at national, county and town / municipality levels.
In view of the demographics and economic development, islands divided into two groups according to the Islands Act (Article 2):

- The first group includes undeveloped and insufficiently developed populated or periodically populated islands as follows: Unije, Susak, Srakane Vele, Srakane Male, Ilovik, Maun, Prvić (Kvarner Bay Islands), Goli, Sv. Grgur, Premuda, Silba, Olib, Škarda, Ist, Molat, Dugi otok, Zverinac, Sestrunj, Rivanj, Rava, Iž, Ošljak, Babac, Vrgada, Prvić (Šibenik Islands), Zlarin, Kaprije, Žirje, Veli and Mali Drvenik, Šćedro, Vis, Biševo, Sv. Andrija, Lastovo, Sušac, Vrnik, Mljet, Šipan, Lopud, Koločep, Lokrum, Kornati and islands of Žut and Sit group.
- The second group includes all populated islands (48) that have not been included in the first group and also Pelješac Peninsula.

Sustainable island development programmes list and asses total natural and built resources of islands or island groups, paying special attention to unutilised farmland and buildings and determining the manner of their preservation i.e. overall and sustainable utilisation pursuant to the National Programme's principles and guidelines. Economic investment proposals shall contain provisions about the type, volume, location and production life of goods and/or provision of services. Programme of sustainable island development represents a compulsory developmental programme of all coast-island counties, island and coast-island towns, and municipalities. Content and methodology for the drawing of the programme of sustainable island development is prescribed by the Government of the Republic of Croatia upon recommendation of the Ministry and with previously obtained opinions of the Ministry of Environmental Protection and Physical Planning, Ministry of Finance, Ministry of Trades, Small and Medium-Sized Enterprises, Ministry of the Economy, Ministry of Culture, Ministry of Tourism, Ministry of Maritime Affairs, Transport and Communications and Croatian Water Board, respectively.

Program for sustainable development of the island has been adopted for all islands and island groups in Croatia.

Activities determined by the National Programme and sustainable island and island group development programmes providing for viable island growth are supported by the government and include, as follows: ecological agricultural production on the existing and new plantations either on open or protected areas (olive growing, wine growing, Mediterranean fruit growing, growing and processing of medicinal herbs, vegetable farming); extensive and semi-extensive sheep and goat breeding; bee-farming; production and processing of agricultural produce with the label of origin i.e. label of geographic origin "Croatian island produce" (production of sheep and goat cheese, production of honey and other apiarian products, production of table grapes; production of vintage and other quality wines; preservation of olives and production of olive-oil of virgin and extra virgin quality; drying, preservation and processing of fruit, vegetables, mushrooms and pot herbs; production of pharmaceutical and cosmetic semi-products and products); shell farming; catching of oily fish and catching of white-flesh fish in the areas of outer fishing seas; spawning, breeding and processing of fish and other marine organisms; fish trade; diving; farming, selective and controlled exploitation, processing and preservation of corals and sponges; stone-carving; stone-dressing; sea salt production; sail making; production of fishing tools; pottery; making of unique island souvenirs and other small trade activities; viable tourism in new and existing reconstructed and remodelled facilities; eco-tourism and other selective forms of tourist offer; small shipbuilding; production of boat accessories and ship overhaul; production from the area of activities that involve scientific and technological research including the use of high technologies (especially those of sustainable energetic; information technology; environment friendly manufacture of the final phase of processing and manufacture of finished industrial products; utilisation of renewable power sources; construction; home and foreign trade; maritime, road and air island transportation; workshops for artists; workshops for the restoration of cultural heritage; activities of private, humanitarian and similar non-governmental welfare and health institutions.

- ✓ **In practice**

For islands within an island group, programmes of sustainable island development are drawn for each island individually and as part of the group. The representative body of a local self-government unit may adopt separately individual Island programmes. Region of Istria has not adopted any program of development of the island.

1.2.2 *Protection "outside specially protected areas"*

- ✓ ***In practise***

Physical Plan Region of Istria contains the areas with special development measures. There are in article 151 for the coastal area (towns of Umag, Novigrad, Poreč, Rovinj, Vodnjan, Pula and Labin and for communities of Brtonigla, Tar-Vabriga, Vrsar, Funtana, Bale, Fažana, Medulin, Ližnjan, Marčana, Barban, Raša and Kršan):

-to lowe the communal taxes and compensations in parts of area which is not build yet, but is intended for residential areas with no more than 10% of business zones
-introducing the special zones for paying the communal taxes and compensations for residential-tourist areas, and expanded parts of the settlements after this plan is been approved
-guidance in building the industrial, manufacturing and commercial buildings by the means of friendly credit policy and lower communal taxes and compensations
-it is advised for town or municipalities budget to secure the means for solving the relation with properties considering road building and infrastructure

1.3 Knowledge of ecosystems

- **Mechanisms for monitoring and observation (16-1)**

"The Parties shall use and strengthen existing appropriate mechanisms for monitoring and observation, or create new ones if necessary" (16-1).

The National Environmental Protection Strategy (OG 46/02) foresees establishment of the Marine Information System, and the Regulation on the Environmental Information system (EIS) (OG 74/99) envisages the marine environment data collection. The Croatian Environmental Agency (CEA) is responsible for establish of the EIS. Systematic Research of the Adriatic Sea as a Base for Sustainable Development of the Republic of Croatia (Project Adriatic) is the only systematic monitoring within the Croatian national Monitoring Programme. This Programme monitors the marine ecosystem including the surface concentration of nitrate and phosphate in the eastern Adriatic Sea area.
Most monitoring stations have recorded a relatively low concentration of orthophosphates and observe their decreasing trend. Area of Vranjic has recorded some higher concentration of orthophosphates. The Kaštela monitoring station has observed an increasing trend in inorganic nitrogen concentration.
Concentration of nutrient is generally highest in the vicinity of river mouths and cities, reflecting the land based nutrient inputs. The monitoring stations are generally located in coastal waters. In the marine topic data on following issues are collected and processed:

quality of transitional, coastal and marine waters, oceanographic and hydrographical data, data regarding hazardous and harmful algal blooms, sea bathing water quality, marine pollution caused by maritime transport, invasive species, marine pollution incidents and interventions against accidental marine pollution, and other important data for monitoring quality and pressures on the marine environment and coastal areas, including the relevant spatial data and information on infrastructure as well as data on marine and coastal area protection policy.
Reporting on state of marine environment is done by means of indicators and preparation and/or coordinating the preparation of thematic reports and other reports on state of the environment (report on state of environment in marine water is integral part).
Reports on marine environment status, in accordance with other international engagements, also include collection of reports and their integration in Central Data Repository (CDR Croatia). In cooperation with responsible institutions and within Environmental Information System (EIS), databases are being developed and integrated in the Marine Information System, that collects, processes and displays data on marine. The system harmonized with Water Information System for Europe (WISE).
The Regulation on sea bathing water quality (OG 73/08) sets out standards for bathing water quality on sea beaches, establishing limit values for microbiological parameters and other characteristics of the sea. The management measures are as follows: – establishing a monitoring timetable (calendar), – monitoring of sea bathing water quality, – assessment of sea bathing water quality, – identifying and assessing causes of pollution that might affect bathing water quality and impair bathers' health, – taking action to prevent bathers' exposure to pollution, – taking action to reduce the risk of pollution, – classifying sea bathing water, – establishing and maintaining a bathing water profile. A sea beach is a developed or natural beach defined under a special regulation. Microbiological parameters monitored in the sea are intestinal enterococci and Escherichia coli, the limit values of which prescribed in Annex I of this Regulation. Other sea water characteristics which monitored are meteorological conditions, temperature, and salinity of sea water as well as visible contamination. The bathing season at sea beaches shall last from 1 June until 15 September, unless due to weather conditions and local customs, the representative body of the county issues a decision on the bathing season lasting for a longer period of time. Bathing water classified according to Article 20 paragraphs 1 and 2 of this Regulation is labelled on the cartographic representation and on the information board placed on the beach by a circular symbol: – excellent: blue, – good: green, – sufficient: yellow, – poor: red. The Croatian Environment Agency shall deliver the report on annual assessment of beaches on the Croatian Adriatic and the report on final assessment of beaches on the Croatian Adriatic to the European Commission, in accordance with Directive 2006/7/EC of the European Parliament and of the Council of 15 February 2006 concerning the management of bathing water quality and repealing Directive 76/160/EEC.

- **Preparing and updating inventories (16-1, 16-3)**

"The Parties shall (…) prepare and regularly update national inventories of coastal zones which should cover, to the extent possible, information on resources and activities, as well as on institutions, legislation and planning that may influence coastal zones" (16-1).

"With a view to facilitating the regular observation of the state and evolution of coastal zones, the Parties shall set out an agreed reference format and process to collect appropriate data in national inventories" (16-3).

In cooperation with the competent authorities of the Croatian Government and professional and scientific institutions, the Croatian Environment Agency has revised the *draft of the National list of Indicators, 2009.* The new draft of the National list of indicators, 2011 covers the period from 2011 to 2013. The base was the Environmental Protection Act (O.G. 110/07), the Regulation of the Environmental Information System (O.G. 68/08) and other relevant regulations. Particular emphasis placed on the guidelines laid down in **the Strategy for Sustainable Development of Croatia (O.G. 30/09)** and the needs of the establishment, management, development, and coordination of the Environmental Information System (EIS). The list contains 245 datasheets for 27 topics and presents an integrated tool of the Agency and its collaborative institutions for implementing the monitoring and environmental reporting. The final draft of the National list of indicators, 2011 submitted on 11th October 2011 to the Ministry of Environmental Protection and Nature for acceptation. *In the thematic area of nature*, data on following issues are collected and processed: pressures and changes in components of biodiversity and biological resources resulting from management, and other natural phenomena. Reports on biodiversity represent an integral part of every state of the environment report. Reporting on biodiversity for international purposes includes collection of reports and their integration into Central Data Repository (CDR Croatia). All collected data integrated within the Environmental Information System (EIS). Furthermore to its own databases, the CEA provides an insight into other databases of biological diversity in Croatia. The Croatian Environmental Agency collects, integrates and processes data and information for the purposes of making reports on sources of loads on the environment, reports on transport, tourism, energy, health, and safety, and develops indicators within the National List of Indicators. The Agency also maintains specific databases and records within the Environmental Information System (EIS). Resulting from the above mentioned economic activities, the Agency aims to achieve a higher degree of development of chemical safety in relation to environmental and human health due to chemicals dispersed in the air, soil, water, and sediment and living organisms. These pages provide general information on the Sectors Impacts Monitoring Department information on their work, as well as on collected data and reports that compiled on the basis of obtained data.

- Industry
- Energy
- Transport
- Tourism
- Health and the Environment

- **Participating in a Mediterranean coastal zone network (16-2)**

"In order to promote exchange of scientific experience, data and good practices, the Parties shall participate, at the appropriate administrative and scientific level, in a Mediterranean coastal zone network, in cooperation with the Organization" (16-2).

In the *environmental topic of inland waters*, data on following issues are collected and processed: inland water quality (rivers, lakes, groundwater), wastewater, abstraction of drinking water and drinking water quality, nitrate vulnerable areas , bathing water quality, water quantity and water use, accidental pollution and pollution of inland waters due to river traffic, transboundary pollution, as well as other relevant data on water quality and pressures, including the relevant spatial data, data on water infrastructure and also data

regarding water protection policies. The Reports presented on the national and international level and to the general public as well. The reports presented through the list of indicators and by preparation and/or coordinating the preparation of thematic reports and other reports on state of the environment (which is an integral part of the water status report). Reporting on water status in accordance with other international requests also includes collection of reports and their integration in Central Data Repository (CDR Croatia). In cooperation with national competent institutions and authorities, within Croatian Environmental Information System (CEIS), databases on the quality and quantity of water are being developed and gathered in Information System on Water that collects processes and displays data on waters. The system harmonized with Water Information System for Europe (WISE). The Croatian Environmental Agency collects data and processes them in the form of indicators, for the purposes of environmental monitoring and making of reports. Identification of the pressures, collection of data relating to damage and contamination of soil, is a prerequisite for proper development of plans, development strategy for soil protection, as well as for making of monitoring plans.
Although the Soil Protection Law is still in the process of being enacted, the Agency has initiated following projects for the purpose of informing the general public: Establishment and development of the Croatian Soil Information System (CROSIS); the Potentially; Institutions conducting in Field Work and/or Laboratory Soil Analysis Database; CORINE Land Cover Database, according to Land Cover methodology; Project: Development of the Croatian Soil Monitoring Programme with a Pilot Project (LIFE05TYC/CRO/000105) The thematic areas of pedosphere and lithosphere are covered by the CEA, and also by cooperative institutions.

- ✓ **In practise**

There has been a systematic monitoring of the quality of the air, the waters, and the sea in the area of the Region of Istria since the early 1980s. **The Istria Region has been an active participant in the co-financing of the monitoring programme since 1996.** The analysis results are useful for the coastal units of self-government in the definition of priority repair programmes, especially in the part of sewage systems with the objective of protecting the bathers' health. The Programme is financing from the Budget of the Istria Region, budgets of the coastal units of self-government, and the concessionaires. Region Government once a year examines the described issues and it adopts the Conclusion on the Sea Quality on the Beaches. Institute for Public health of the Istria Region, together with the Department for the Protection and the Improvement of the Environment, has been monitoring the quality of air since 1982. The first automatic station installed in the area of the Istria Region and the Republic of Croatia. The station installed by the Town of Pula, as a part of the programme of repairs in the locality of Fižela, a zone under the dominant influence of the emissions from the Cement Factory Pula. Since 2002, the region network has included automatic stations around thermo-electric power plant Plomin. The Government of the Istria Region analyses the annual reports and adopts the Conclusion. The Istria peninsula is the largest unit with its own and specific hydro-geological and hydrology characteristics without a strong connection with its direct hinterland. Surface running waters and underground waters represent significant water resources of Istria. In accordance with the regulations from **the Waters Act (OG no. 107/95)** a systematic monitoring of the quality of waters is the subject of the programmes in the domain of Croatian Waters. Results of monitoring the quality of waters

enable the adoption of basic planning premises for water management at the level of the Republic of Croatia and the Istria Region. Monitoring the quality of surface water flows - Dragonja, Mirna, Raša, Boljunčica, and Pazinčica has been systematically caring out since 1980, while the Butoniga accumulation has monitored since 1990. Complex hydro-geological relations, primarily conditioned by numerous specific features of water flows in the karst underground left numerous open questions regarding both the inflow area and the underground waters supply, which also means the question of the possibility of increasing pumping quantities in the intervention location and the protection of sources. With the aim of obtaining as representative as possible indicators of the quality of waters at the sources and the wells, the Istria Region has financed the programme of monitoring which has supplemented the programme of Croatian Waters since 1997. The Institute for Public health of the Istria Region carries out the programme. The Government of the Istria Region examines the report and adopts the Conclusion.

1.4 Land management

- **Formulating land policy (20-1)**

"Parties shall adopt appropriate land policy instruments and measures, including the process of planning" (20-1).

The Croatian parliament adopted the **Physical Planning Strategy** on 27 July 1997. Under provisions of the Physical Planning Act, the Strategy is the basic physical planning document used for the project development decisions, land-use planning in smaller areas, and development of the local land-use plans. The Physical Planning Strategy goals are:
-Maintaining of preserved areas
-Systematic remediation of threatened areas
-Ensuring minimization of space degradation in new spatial development programs
-Keeping the current share of anthropogenic areas
-Stipulating development of medium-size urban communities
Among major spatial development problems, the most pronounced ones are irrationality of space use, uncontrolled growth of large cities, neglect of rural areas and areas along the state border, the occupancy of large areas for building purpose (particularly in the segment referring to settlements and industrial zones expanding over high-quality agricultural land), low quality mass construction, at the coast with an extremely large share of illegal construction, with underdeveloped infrastructure in some segments and generally unsolved questions of waste disposal. Interdisciplinary approach must to be base for decisions in the field of spatial development. Therefore it is necessary, among other, to create and advance regulation, especially the legal basis for urban reallocation and expropriation as precondition for efficient orientation of settlement planning, particularly from the position of safeguarding public interests, to secure professional qualification at all levels, particularly at the local one. Based on the adopted Physical Planning Strategy, and in accordance with the Physical Planning Act, the Ministry prepared the **Physical Planning Programme for the Republic of Croatia** which sets up measures and course of action for its implementation.

- **Using tools such as protection agencies (20-2)**

"Parties may *inter alia* adopt mechanisms for the acquisition, cession, donation or transfer of land to the public domain and institute easements on properties" (20-2).

Landscape intrusion intensifies without proper, justified reason, and without adequate results. This is particularly intensive at the outskirts of cities, where infrastructural networks disturb natural landscape.

Main land take driver was urban development-building of housing estates, services, and recreation amenities. The largest land-cover category taken by urban development includes complex cultivation pattern category. According to the **Maritime demesne and seaports Act (OG 158/03, 141/06**) neither ownership nor any other property right may be acquired on maritime demesne on any grounds.

- ✓ **In practise**

According to **Physical Plan Region of Istria** (Istria Region „Official paper" no. 16/11,consolidated text) the execution of the delimitation of environment according to usage, established by this plan is carried out by environment arrangement plan of a community and city, laws and decisions of announcements of nature parks, by determining the bonification class of lands, by development of forest economics basis, by determining the characteristics of cultural wealth, by development of water management and plans for water drainages, by the development of mineral raw materials management basis and by determine the areas which are imperilled by fire and elementary disasters and the war destruction. The delimitations according to use is presented in graphic maps from no. 3.1 to no. 3.4.

The delimitation of protected natural heritage areas done by according an expert base proposal drawn up by the National Institute for Nature Protection which shall establish the assets of the area to be protected, the method of administering the area, as well as on a statement drawn up by the body passing the act of designation concerning the funds granted for managing the protected area. Protected areas are: strict nature reserve, national park, special nature reserve, nature park, regional park, nature monument, important landscape, forest park, park landscaping monument.

The delimitation of the sea in reference on the measures of protection anticipated by Physical Plan conducted on basis of categorization of coastal sea on II and I categories, in accordance of article 132 of ordinances. Graphical map no 3.3 of this Plan presented the categories of the protection of the sea.

The delimitation of the waterworks in reference on measures of protection anticipated by this plan conducted on basis of categorization of waterworks on II category, and I in accordance of article 129 of ordinance.

Graphical map no. 3.3 of the Physical Plan Region of Istria presented the categories of the protection of the waterworks. The areas for development and foe arrangement which are situated inside city limits are as follows: the settlements areas (except the areas which are intended for agricultural production solely), the areas of housing-tourist settlements, the areas of tourist development zones (tourist zones), the zones of economic use production-industry, small enterprises, manufacture, and business-markets, communal services etc), as and all areas intended to be used as a landfills.

The purpose and ways of usage of water surfaces is related to water (sea), water (sea) volume and on bottom of the rivers.

The *delimitation of the sea* conducted by determining the usage for (Article 29):

- Traffic function
- Fishing
- Mariculture
- Recreational
- Other activities

The sea zones indented for traffic activity divided on seafaring routes, harbours, harbour basins, and anchorages.

The fishing zones are divided as outer sea zone (more than 2 km from the shore) which is intended for all kinds of fishing in the frame of accordance with rules of sea fishing, and inner sea zone (distance from the shore is inside 2 km) which is intended for economy fishing with selected techniques of fishing, and as for sports fishing.

The breeding of fish and shells (mariculture) can be conducted in suitable areas, determined by this plan, and the breeding of fish on the open sea and research of experimental production can be conducted on suitable and other, unpolluted locations of the inner zone.

The recreational zones are included the parts of aquatory close to shore and they are intended for swimming and water sports. On that parts of the coast, the zone for swimming and sports is minimally 300 meters in width, and in urban plan documents for city and municipality that zone can be augmented, but in a way that it does not interfere with seafaring routes on inner and international routes.

The other purposes are exploitation of sea raw material, various underwater activities, and other, under conditions determined by special list.

By this plan, it is enabled that in specially explored and justified locations, and on the rank of urban planning of cities and municipalities, can, in a underwater zone of inner sea zone and recreational zone of coastal part of the sea, the artificial habitats can be planned, on account of expansion of potential habitats specially valuable benthos entities, and as for reduction of destruction impact of the sea on arranged beaches.

2. MANAGING COASTAL ACTIVITIES

2.1 Reconciling coastal activities and preservation of ecosystems

2.1.1 *General principles applicable to all coastal activities*

- **Respecting the principle of balance (5a, 6h)**

"The objectives of integrated coastal zone management are to (…) facilitate, through the rational planning of activities, the sustainable development of coastal zones by ensuring that the environment and landscapes are taken into account in harmony with economic, social and cultural development" (5a).

"The Parties shall be guided by the following principles of integrated coastal zone management: (…) the allocation of uses throughout the entire coastal zone should be balanced, and unnecessary concentration and urban sprawl should be avoided" (6h).

Environmental Protection Act (OG 110/07) describe following terms:

- Integrated coastal zone management (ICZM) is the dynamic process of sustainable management and use of coastal zones, simultaneously taking into account the frailty

of coastal ecosystems and the landscape, the diversity of activities and use, their interaction, the maritime orientation of certain activities and use their impact on marine and terrestrial components,

- Marine ecosystems are regions of ocean space encompassing coastal areas from river basins to estuaries to the seaward margins of coastal current systems and seaward boundaries of continental shelves, which are characterized by distinct productivity and trophic, bathymetric and hydrographical features of the region,

- Marine environment is the living space of organisms and their communities, defined by distinctive physical, chemical and biological features which includes: open sea zones, estuaries and coastal marine zones including internal sea waters, territorial sea, sea bottom and seabed of those marine zones,

- Environment is the natural surroundings of organisms and their communities including man, which enables their existence and their further development: the air, water, soil, lithosphere, energy and material assets and cultural heritage as part of man-made surroundings, in their diversity and totality of mutual interaction,

- Marine pollution is direct or indirect introduction by man of substances or energy into the marine environment, which results or may result in fatal consequences to the living conditions of flora and fauna in the sea and seabed, that is, may generally endangered living conditions in the sea and endanger human health, hinder marine activities including fishing and other lawful uses of the sea and seabed, impair the quality of sea water and reduce the amenities of the marine environment.

- Environmental status of the marine environment is the overall environmental status in marine waters, taking into account the structure, functions and processes of the components of the marine environment along with natural physiographic, geographic and climate factors as well as the physical, chemical, and biological conditions including those resulting from human activity.

The Nautical tourism development Strategy of the Republic of Croatia 2009-2019 (December, 2009), contains a vision and strategic goals of further development of nautical tourism in accordance with the principles of sustainable development, as well as the Action Plan for the Strategy implementation which elaborates measures, activities, carriers and deadlines of the Strategy implementation for the period 2009 - 2019. The basic principle of management of the development of nautical tourism is the principle of sustainable development which presumes the necessity of finding a compromise between the need for preservation of natural areas and the need for economic development, and it is achieved primarily by establishing the carrying capacity of an area and establishing a ceiling of growth of new capacities for reception for a certain period. Protected sea areas and mariculture zones referred to in Annex V and VI, and fish spawning areas have the priority in terms of implementation of the **Contingency Plan for Accidental marine Pollution (OG 92/08).**

- **Providing for freedom of access to the sea and along the shore (8-3d)**

"The Parties shall also endeavour to ensure that their national legal instruments include criteria for sustainable use of the coastal zone. Such criteria, taking into account specific local conditions, shall include, *inter alia*, the following: (…) providing for freedom of access by the public to the sea and along the shore" (8-3d).

According to the **Maritime demesne and seaports Act (OG 158/03, 141/06**) the use of maritime demesne may be a general or special one. General use of maritime demesne shall mean that anyone has the right to use maritime demesne pursuant to its nature and purpose. Special use of maritime demesne shall be any use that is not a general one nor is a commercial exploitation of maritime demesne. Commercial exploitation of maritime demesne shall be the use of maritime demesne for carrying out commercial activities, involving, or not the use of existing installations and other facilities on maritime demesne and with or without constructing new installations and any other facilities on maritime demesne.

- **Addressing activities that require immediate proximity to the sea (9-1a)**

"The Parties shall (…) accord specific attention to economic activities that require immediate proximity to the sea" (9-1a).

Spatial planning defines the activities that require immediate proximity to the sea. Conflicts have been emerging due to the limitations of the Croatian coast.

- **Managing water resources and waste (9-1c)**

"The Parties shall (…) ensure respect for integrated water resources management and environmentally sound waste management" (9-1c).

The Regulation on Quality Standards for Water (OG 89/10) stipulates water quality standards for surface waters including coastal waters and territorial sea waters, and for groundwater. The ecological status of surface waters shall be established on the basis of biological, hydromorphological, chemical and physiochemical elements supporting the biological elements, whereas the chemical status of surface waters shall be established with respect to the priority and other pollutants as follows: *Coastal waters (*a) ecological status - biological elements, composition, abundance and biomass of phytoplankton, composition and abundance of other aquatic flora, composition and abundance of benthic invertebrate fauna, hydromorphological elements, morphological conditions: depth variation, structure and substrate of the coastal bed, structure of the intertidal zone; tidal regime: direction of dominant currents, wave exposure, chemical and physiochemical elements supporting the biological elements, transparency, thermal conditions, oxygen balance, salinity, nutrients ; b) chemical status: chemical status in relation to priority substances, pollution by priority substances discharged into the body of water, chemical status with respect to pollutants, pollution by other substances discharged in significant quantities into the body of water). Elements applicable to artificial and heavily modified water bodies shall be those applicable to whichever of the natural surface water bodies most closely resembles the heavily modified or artificial water body concerned. General ecological status of surface water bodies shall be assessed as follows: *high status* – there are no, or only very minor, anthropogenic alterations to the values of the physiochemical and hydromorphological quality elements for the water body from those normally associated with that type under undisturbed conditions. The values of the biological quality elements for the entire surface water body reflect those normally associated with that type of water under undisturbed conditions, and show no, or only very minor, evidence of distortion. These are the

type-specific conditions. *Good status* – the values of the biological quality elements for the particular water body type show low levels of distortion resulting from human activity, but deviate only slightly from those normally associated with that surface water body type under undisturbed conditions. *Moderate status* – the values of the biological quality elements for the particular surface water body type deviate moderately from those normally associated with the water body type under undisturbed conditions. The values show moderate signs of distortion resulting from human activity and are significantly more disturbed than under conditions of good status. *Poor status* – waters showing evidence of major alterations to the values of the biological quality elements for the particular surface water body type and in which the relevant biological communities deviate substantially from those normally associated with that water body type under undisturbed conditions, shall be classified as poor. *Bad status* – waters showing evidence of severe alterations to the values of the biological quality elements for the particular surface water body type and in which large portions of the relevant biological communities normally associated with that water body type under undisturbed conditions are absent, classified as bad. Results of surveillance monitoring are using for:

- supplementing and validating the procedure for assessing the impact of human activity on the aquatic environment,
- Efficient design of future monitoring programmes,
- Assessment of long-term changes in natural conditions, and
- Assessment of long-term changes resulting from widespread human activity

The waters are a sensitive area as belonging to the estuaries, bays and other coastal waters with poor water exchange, or a large amount of nutrients.

The Government of the Republic of Croatia in July 2007 adopted the **Waste Management Plan in the Republic of Croatia for the period from 2007 to 2015.** The Waste Management Plan represents the fundamental document on waste management in the Republic of Croatia for the period from 2007 to 2015. The framework for the preparation of the Plan includes the **Waste Management Strategy of the Republic of Croatia (OG 130/05**), legislation in force and guidelines of the European Union. The basic task of the Plan for the period mentioned is to organise the implementation of the main goals of the Strategy set out for the period from 2005 to 2025 in the area of waste management in Croatia which are:

a) establishment of an integrated waste management system,
b) Remediation and closing of existing landfills,
c) Remediation of "hot spots," locations in the environment which are highly burdened with waste,
d) Development and establishment of regional and county centres for waste management, with pre-treatment of waste before final disposal or land filling and
e) Complete computerisation of the waste management system. The Government of the Republic of Croatia adopts the Plan for the period from 2007 to 2015 which, in accordance with the **Waste Act (OG 178/04, 111/06),** contains the following:

(1) The requirements for managing special categories of waste,
(2) Distribution of locations (networks) of facilities and devices for the recovery and disposal of waste and the deadlines for their construction,
(3) General technical requirements for waste management facilities and devices and
(4) Estimate and possible sources of funding needed for implementing waste management goals

Integrated waste management system does not yet exist in Croatia. Even though Croatia is a country with islands, this Plan does not analyse islands and the coastal area separately

because the waste management system on islands and on the coast is included under all existing laws and subordinate regulations in the area of waste management. The waste management system on islands ensues from the Regulation on organisation and protection of the protected sea coast (OG 128/04) and the Strategy. The **Ordinance on conditions and methods of maintaining order in ports and in other parts of the internal maritime waters and territorial sea of the Republic of Croatia (OG 90/05)** defines waste management in maritime ports. The port authority is responsible for performing supervision over maintaining order in ports and in other parts of the internal maritime waters and territorial sea, especially for keeping the coast and sea clean from pollution from maritime facilities.
The authority managing the port is responsible for cleaning the port from debris endangering navigation safety and polluting the sea and for organising the waste management system in maritime ports. The authority managing the port must provide waste reception facilities in the port. The Ordinance prescribes the procedure for reporting and reception of waste from vessels and cargo residues.
The implementation of the abovementioned Ordinance also includes provisions of the MARPOL 73/78 Convention. The Waste Management Strategy has laid down the establishment of regional and county Waste management centres (WMCs) on a long term basis.

- **Careful management of natural resources (9-1b)**

"The Parties shall (…) ensure that the various economic activities minimize the use of natural resources and take into account the needs of future generations" (9-1b).

Water management principles are:

- Water is an irreplaceable precondition for life and activity. It is the duty of all people to carefully protect its quality, and to use it sparingly and rationally, under equal conditions established by law.
- Water management have to be in accordance with the principle of integrity of the water system and the principle of sustainable development which meets the needs of the present generation, without threatening the right and possibility of future generations to meet their needs.
- Water knows no limits – the territorial water management units are river basin districts and catchment areas as hydrographical and economic units. The borders of administrative and territorial units shall not present obstacles to integrated water management in such areas.
- The starting point in the preparation and adoption of plans which are the basis of water management is the obligation of integrated environmental protection and achievement of general and economic development of the Republic of Croatia.
- The regulations defining the tasks and duties to invest in the improvement of the water system shall also define the sources of financing.

- **Adapting the coastal economy (9-1d)**

"The Parties shall (…) ensure that the coastal and maritime economy is adapted to the fragile nature of coastal zones and that resources of the sea are protected from pollution" (9-1d).

The development of the industry in the coastal zone area should be restricted to existing industrial zones, considering that in that zones no technological processes which could cause pollution of the sea with toxic and other harmful stuff are planned, during the regular

process or in extraordinary circumstances. In the existing plants which are causing significant pollution of the sea environment, the technology should be changed and introduce low waste production and to strive to specific autochthonic productions. The measures for stopping and reducing the pollution from the land are:
-the building of the public drainage systems
Building the sewage systems is primary sanitary-health standard and most efficient direct way of sea protection, so the solving of the problem of the collection of waste waters and their cleaning must be primary mission.
-the building of central plants for cleaning the wastewaters with underwater vents
It is obligator to complete mechanical (primary) degree of cleaning including the instalment of buildings for sedimentation (with aeration) before the underwater disposition, by which it would be coordinated with demands of European Union for reduction (50%) of suspended matter before releasing them into the sea. The higher degree of cleaning should be propriety built on communal plants with largest burden of pollution (central cleaners of the system with more than 25 000 ES)
-treatment and storage of the sludge from waste water-cleaning plants
-the reconstruction with special measures of security or removal of the storages of liquid fuels and mineral oils on the entire coastal area
-the other industrial complexes on the coastal area, without solution for wastewaters transportation, must build a pre treatment and connections on public sewage systems
In the shipyards it is necessary to solve the collection of waste matter from any corrosive treatment of the vessels (paints, abrasives, marine growth prevention matter)
-to traverse to applying of up to date, ecologically accepted processes, for all industries and to introduce repetitive use of the same water
-in the other industries and plants (galvanization, graphical and service plants, car washing, slaughterhouses, dairies, oil plants, the production of paint and solvents, the storage for the fuel and mineral oils) which are connected on public sewage, it must be conducted the protective measures by building and maintaining the pre treatment of technological waters and storing the technological waste
-the dangerous waste is to be collected in factory zone (storing) and to prevent its water rinsing and draining, or releasing in intern sewage system and further to the sea, and after establishing the wholesome system of storing of the dangerous waste on the location
-to obtain the equipment for prevention of the spreading and for cleaning the pollution (cleaning ship, floating protection damns, skimmers, pumps, reservoirs, specialized vehicles, dispersant) inside own facilities or by the way of specialized enterprises
-in the harbours to secure the acceptance of oiled waters and used oiled
-in the marines and local harbours to install the equipment for acceptance and treatment of sanitary waters from the boats, containers for disposal of communal waste, used oil, remnants of fuels, and oily waters

- ✓ **In practise**

The goals of development and principles of space organization according to **Physical Plan Region of Istria** (Istria Region „Official paper“16/11, consolidated text) are (Article 3):
-Organization, order, and protection of region space according to continuo progress are the main goals of region of Istria

-Apply the systematically protection of the environment and to prevent the pollution, which means to make the system of the environment control and natural resources, avoid the solutions with unstable or long-term conditions to the environment, to secure the environment education and participation of the population, to solve the problems with known polluters and most jeopardized areas.

Basic principles for area planning are (Article 4):
-Area as a resource
By Physical plan Region of Istria, the environment is claimed most valuable resource of the region, with natural beauty, fields, sea, underwater and belonging organisms, but also very sensitive resources, such as subterranean waters, coastal area and forests.
-Sustainable development
Sustainable development is a basic principle for the area planning and guarantee for the future, which means saving the natural resources and environment for generations to come. Sustainable development is not suffocating the economic development, but it cannot jeopardize people's health, plants, and animal species, the process in nature and natural goods.

*The conditions of delimitation of space according to usage (*Article 6, 7*)*
Sensitivity of space, determines use of space. According to the intended use of space, the space of Region of Istria is divided into:

a) Protected natural heritage
b) Space of National Ecological Network
c) Protected cultural and historical inheritance
d) Protected agricultural and forest area
e) Protection of the seas and inland waters, the waterworks and water springs
f) Area and parts of imperilled environment

2.1.2 *Specific tools to be implemented*

- **Defining indicators of the development of economic activities (9-1e)**

"The Parties shall (…) define indicators of the development of economic activities to ensure sustainable use of coastal zones and reduce pressures that exceed their carrying capacity" (9-1e).

Regional Development Programmes lay down the system of economic development indicators related to sustainable development at the regional level. It is comprise physical indicators needed for quantitative monitoring of RDP implementation. The Croatian Environmental Agency (CEA) manages a specific system of environmental indicators set up within the ICZO-Croatian Environmental Information System. The Marine Environment Management Plan will identify indicators for monitoring the status of the marine environment, in accordance with the MSFD. Republic of Croatia has not adopted the Marine Environment Management Plan.

- **Taking into account the carrying capacity of coastal zones (6b)**

"The Parties shall be guided by the following principles of integrated coastal zone management: (…) All elements relating to hydrological, geomorphological, climatic, ecological, socio-economic and

cultural systems shall be taken into account in an integrated manner, so as not to exceed the carrying capacity of the coastal zone and to prevent the negative effects of natural disasters and of development" (6b).

The system of spatial planning has to observe this requirement of the Protocol. The Spatial Planning Act stipulates those guidelines and opinions of various spatial planning actors (the sectors of agriculture, nature, waters, cultural heritage, tourism, etc.) which will be obtain during the procedure of preparation of different forms of spatial documents at national, regional and municipalities' levels. Integrated environmental impact assessment must be performing in accordance with Environmental Protection Act.

- **Promoting codes of good practice (9-1f)**

"The Parties shall (…) promote codes of good practice among public authorities, economic actors and non-governmental organizations" (9-1f).

The **Blue Flag** is a certification by the Foundation for Environmental Education that a beach or marina meets its stringent standards. FEE's Blue Flag criteria include standards for water quality, safety, environmental education, and information, the provision of services and general environmental management criteria. The Blue Flag is awarded to beaches and marinas as an indicator of high environmental standards and quality. There are 49 beaches and 3 marinas with the blue flag in Istria County.

- **Taking into account the sensitivity of the environment in studies of environmental impact assessment for projects (19-1)**

"Taking into account the fragility of coastal zones, the Parties shall ensure that the process and related studies of environmental impact assessment for public and private projects likely to have significant environmental effects on the coastal zones, and in particular on their ecosystems, take into consideration the specific sensitivity of the environment and the inter-relationships between the marine and terrestrial parts of the coastal zone".

The Ordinance on Nature Impact Assessment (OG 89/07) establishes projects which are subject to mandatory nature impact assessment, the content, timeframe, and manner of establishing the nature impact assessment, the method of informing the general public and the method of calculating the security for elimination of possible impacts on nature. The Assessment shall be mandatory for a planned project which individually, or in combination with other projects, may have a significant impact on the ecological network. A project shall mean any planned project and any plan or document planning a project which may affect the ecological network. Any natural resource management and use plan in water management, forestry and hunting, freshwater and sea fisheries, mining, agriculture, energy, transport, telecommunications, tourism, sport and recreation, etc., shall be subject to Assessment. The Ministry shall carry out the Assessment procedure which consists of four stages: (I) Screening, (II) Main Assessment, (III) Assessment of other feasible options, and (IV) Establishment of overriding public interest and compensation terms. If the Screening establishes that a planned project shall not have any significant impact on the ecological network area, the Ministry or the competent state administration office shall, by decision, establish that the Holder is not obliged to carry out the Main Assessment or that the Holder is granted the right to carry out the project in relation to the ecological network. In the course of the Main Assessment procedure, the Ministry reviews the impacts of the planned project on the integrity of ecological network area in view of the structure and function of

the ecological network area and its conservation objectives, and proposes mitigation measures for identified harmful effects. If the area of a planned project hosts a habitat type or habitat of a plant, fungi or animal species protected under international treaties and other regulations, the overriding public interest based on which a planned project may be approved may relate only to protection of human health and public safety or to the establishment of significantly more favourable conditions for nature.

- **Using strategic environmental assessment of coastal plans and programmes (19-2)**

"In accordance with the same criteria, the Parties shall formulate, as appropriate, a strategic environmental assessment of plans and programmes affecting the coastal zone".

Strategic Environmental Assessment of Plans and Programmes *(Environment Protection Act, OG 110/07)* is a procedure for the assessment of likely significant impacts on the environment which may occur due to the implementation of a plan or programme. Through strategic assessment a basis is create for promoting sustainable development through integration of environmental protection requirements in the plans and programmes for specific sectors. This enables relevant decisions on the adoption of the plan or programme to be made based on knowledge of the possible significant impacts which the implementation of the plan or programme may have on the environment, while a framework for the activities of developers is provided and the possibility for including the essential elements of environmental protection in the decision making process is ensured.

- **Environmental assessment and carrying capacity (19-3)**

"The environmental assessments should take into consideration the cumulative impacts on the coastal zones, paying due attention, *inter alia*, to their carrying capacities" (19-3).

The Regulation on Environmental Impact Assessment (OG 64/08, 67/09) prescribes in detail the projects for which environmental impact assessment is mandatory; projects subject to evaluation of the need for environmental impact assessment; method of implementing the environmental impact assessment; method of operation and mandatory content of the opinions issued by the committee; method of involvement of the authorised person; method of implementing the procedure for evaluation of the need for environmental impact assessment; method of implementing the procedure for issuing instructions on the content of the study at the request of the developer; method of information and participation of the public and public concerned in the procedures governed by this Regulation; criteria and method of implementing case-by-case analyses on the basis of which the need for environmental impact assessment is determined. This regulation determines which projects are under the competence of the Ministry and which are under the competence of the competent administrative body in the county or in the City of Zagreb. The projects specified in the lists of projects provided in Annex I and II shall be under the competence of the Ministry. For the projects listed in the List of projects provided in Annex I of this Regulation, the decision on the request for environmental impact assessment and the request for issuing instructions on the content of the environmental impact study prior to its development shall be made by the Ministry. The environmental impact study shall contain the chapters and contents as prescribed in Annex IV of this Regulation.

2.2 Regulating specific activities

- **Subjecting activities to authorisation (9-2e, 9-2f)**

"The Parties agree (…) to subject to prior authorization the excavation and extraction of minerals, including the use of seawater in desalination plants and stone exploitation" (9-2ei).

"Infrastructure, energy facilities, ports and maritime works and structures: to subject such infrastructure, facilities, works and structures to authorization so that their negative impact on coastal ecosystems, landscapes and geomorphology is minimized or, where appropriate, compensated by non-financial measures" (9-2f).

The Physical Spatial Plans regulated economic use of natural resources-extraction of minerals stone. For economic use of natural resources it is also necessary to obtain a concession.

- **Regulating, restricting and prohibiting activities (8-3e, 9-2)**

"Restricting or, where necessary, prohibiting the movement and parking of land vehicles, as well as the movement and anchoring of marine vessels, in fragile natural areas on land or at sea, including beaches and dunes" (8-3e).

"The Parties agree (…) to regulate aquaculture by controlling the use of inputs and waste treatment" (9-2cii).

"The Parties agree (…) to regulate the extraction of sand, including on the seabed and river sediments or prohibit it where it is likely to adversely affect the equilibrium of coastal ecosystems" (9-2eii).

"The Parties agree (…) to regulate or, where necessary, prohibit the practice of various sporting and recreational activities, including recreational fishing and shellfish extraction" (9-2diii).

According to Article 3-4, "sports and recreational fishing is catching of fish and other marine organisms for the purposes of recreation and sport", while Article 3-14 defines "other marine organisms" as "apart from fish, all marine organisms which are an object of interest for marine fisheries".

At June 2009 contemporary Ministry of Environmental Protection and Spatial Planning adopted "**Criteria for Planning Tourism zones in the Coastal Area of the Republic of Croatia**." According to „Criteria for planning tourism zones in the Coastal area of the Republic of Croatia"(June, 2009.) new tourism zones in physical plans of counties are planned in protected coastal areas, almost exclusively along the coastline. It is of utmost importance to move tourism zones away from the coastline, in order to free the coast from construction, particularly sub-standard construction-regardless whether this refers to organised tourism construction or spontaneous construction. New construction must plan as far away from the coast as possible, i.e. on the border, and/or outside the protected coastal area. In the coastal area hotel construction has to be of high quality with a function tending to all-year utilisation.

Basic guidelines and criteria in the procedure of preparation of Physical Plans of County and Physical Plans of towns and municipalities, between others, are:

-Counties are obliged to implement uniform planning of islands areas and to equalise their provisions for the implementation of physical plans towns or municipalities in the part relating to general requirements for building and spatial development (including tourism zones)

-Construction of tourism accommodation capacities for needs of national parks should be direct outside the boundaries of their scope

-In physical plans of counties and in physical plans for the development of towns and municipalities it is obligatory to prepare an evaluation of landscapes for new and existing not built-up and undeveloped tourism locations
-For tourism zones planned on peninsulas and islands or their parts which are narrower than 250 m it is mandatory to prove in the plan argumentation the possibility of carrying out the planned designation and to establish landscape protection requirements
-for each planned location of nautical tourism ports in physical plans for the development of towns and municipalities an adequate building area needs to be foreseen for the necessary facilities on land and for infrastructure at sea
-the following standards recommended for "dry marinas":
a) The free area in the part on land has to fulfil the needs for storage of a certain number of vessels
b) Dry marinas may include a smaller shipyard for the construction, repair, and service of vessels
-by physical plans for the development of towns and municipalities the boundaries of the scope of urban plans for the development of settlements in which or along to which "developed sea beaches" are planned shall be determined in such a manner to include these beaches in the scope of these plans
-by physical plans for the development towns and municipalities the obligation shall be determined that in urban development plans in building areas in which "developed sea beaches" are planned it is mandatory to plan the possibility of public passage along coast

The Nautical tourism development Strategy of the Republic of Croatia 2009-2019 (December, 2009), give basic directions of spatial nautical tourism development. Priority is the protection of exceptionally valuable areas (uninhabited areas, non urbanised coasts, islands, islets, bays and coves) which motivate the arrival of domestic and foreign nautical tourists, and the planning of new nautical ports construction with the highest standards of environmental protection in less valuable areas. First of all, areas intended for nautical port construction planning should be devastated areas, and especially those included into rebuilding programmes (quarries, abandoned military ports, industrial plants and so on). Further criteria for nautical port construction planning:
- Geographical and demographic features of the location
- Connection with the transport network (vicinity of road junctions and airports)
- Density of maritime transport
- Infrastructure availability
- Avoiding construction in natural protected coves
- Dimensioning ports with respect to the direct hinterland
In the Republic of Croatia there are 333 ports open to public traffic, 6 of which are of national significance, whereas the others 297 ports have county and local importance. Croatia has about 2.6 nautical moorings per kilometre, while France has 64, Italy 3.1, Spain 20.2, Greece 1.1, Turkey 2.2 etc.

- ✓ **In practise**

In physical plans of counties and physical plans for the development of towns and municipalities the proposed procedures have to be adapted to the spatial context, and sustainable values of spatial indicators need to be determined on the basis of analysed

accommodation conditions. For all tourism zones (on land and at sea) the preparation of expert background documents is obligatory by which the proposed project is evaluated in terms of landscape conservation, and of expert background documents by which the conditions for construction of transport and utility infrastructure are evaluated.

Planning of tourism zones (T) smaller than 4 hectares involves excessive use of space and a lack of economic effectiveness with regard to tourism use. Numerous tourism zones with a surface area smaller than 4 ha in physical plans of local self-government units, often even smaller than one hectares-challenge the principle of coastal area protection, which is contrary to the basic postulates of the Physical Planning Strategy (Note: the surface area of 4 ha results from the legal provision that one hectare may include a maximum of 120 beds, while economic profitability requires a minimum of 500 beds.) Nautical tourists find the most attractive the areas under different categories of protection on account of their high natural value and specific environmental and biological diversity: strict reserves, national parks, special reserves, nature parks, regional parks, nature monuments, significant landscapes, forest parks, monuments of park architecture. Particularly attractive are the national parks of Brijuni, Kornati, Krka and Mljet, and the nature parks of Telaščica and Lastovo Islands, whereas the largest number of nautical tourists' visits is realised in the national park of Kornati. The limiting criteria for nautical port construction or expansion planning are the protected areas and ecological network areas on the coast, on islands and at sea, 623 of them in total. The mentioned areas include the possibility of construction or addition of capacities for reception, but under special and highly controlled conditions and protective measures.

The county physical plans envisage expansion of the existing and construction of new capacities for reception of vessels on about 300 potential locations, which is one and a half times more than the existing capacities. The largest planned increase of the total capacities by counties (2015/2007) is as follows: Istarska, Splitsko-dalmatinska, Primorskogoranska, Šibensko-kninska and Zadarska. In exceptional cases, a significantly larger increase would be in the Ličko-senjska County, because previously it did not have any capacities, and the Dubrovačkoneretvanska County, because it previously had only 820 locations. The Istarska County has the most intense development scenario. As has been indicated, it has the largest planned increase of the total capacities - 309.52% (188.43% at sea and 919.69% ashore), the largest proportion in the newly planned total capacity - 42.88%, it would have the largest proportion in the total future capacity - 34.25% (25.97% at sea and 60.71% ashore), its total capacity (18.795) would be three times larger (6,013) than the other counties' average, two times larger at sea (11,220) than the other counties' average (5,062), and nine times larger ashore (7,872) than the other counties' average (869). According to the conducted research and analyses, as well as conclusions of the Study of Nautical Tourism Development of the Republic of Croatia, the suitable scenario for the Republic of Croatia would be the moderate development scenario (scenario B) for nautical tourism development, based on the determined carrying capacity of the area, the moderate annual growth rate and the balanced regional development principle (which may vary with respect to the characteristics of particular counties), which has been harmonised with the development of the supporting communal and other types of infrastructure and the needs for ensuring full employment of inhabitants. For the purpose of its realisation it is necessary to reduce the planned capacities for reception of vessels envisaged by county physical plans, and make strategic environmental impact assessments.

- **Guaranteeing accounting between the development of activities and the preservation of natural, cultural and landscape heritage (9-2)**

"The Parties agree (…) to guarantee a high level of protection of the environment in the location and operation of agricultural and industrial activities so as to preserve coastal ecosystems and landscapes and prevent pollution of the sea, water, air and soil" (9-2a).

"The Parties agree (…) to take into account the need to protect fishing areas in development projects" (9-2bi).

"The Parties agree (…) to encourage sustainable coastal tourism that preserves coastal ecosystems, natural resources, cultural heritage and landscapes" (9-2di).

"The Parties agree (…) to promote specific forms of coastal tourism, including cultural, rural and ecotourism, while respecting the traditions of local populations" (9-2dii).

"The Parties agree (…) to conduct maritime activities in such a manner as to ensure the preservation of coastal ecosystems in conformity with the rules, standards and procedures of the relevant international conventions" (9-2g).

Pursuant to Article 61, paragraphs 1-3 of Nature Protection Act, conservation of endangered wild taxa, indigenous domesticated taxa, and endangered habitat types shall be supported by financial incentives and compensations, as well as by providing favourable loans for safeguard operations.

Financial and other incentives shall also be set aside for protection and conservation of biological and landscape diversity, and particularly for stimulating a management that recognises and enforces biological and landscape diversity conservation measures not harmful to nature, as well as for granting compensations to legal entities and natural persons who owing to protection of biological and landscape diversity suffer respective constraints or damages. **Pursuant to Article 87, paragraphs 1-3 of Nature Protection Act** public roads and other roads or constructions crossing the known migration routes of wild animals shall be built in such a manner as to provide for safe crossing for wild animals at appropriate spatial distance.

Constructed crossing ensuring undisturbed and safe crossing by wild animals shall enjoy protection as natural assets.

The protective measures, the persons eligible to provide protection and the method of maintaining the crossings referred to in paragraph 2 of this article shall be prescribed by ordinance by the Minister subject to the approval of the head of the central state administration body competent for communications, environmental protection and physical planning.

Action plan

- Establish distribution of marine habitats important for conservation of biodiversity and relevant areas that should be protected
- Given the great importance of tourism as an industry in the Republic of Croatia and also taking account of its negative impacts, promote development of sustainable tourism and eco-tourism
- Reduce the impact of transport infrastructure on wild taxa and natural habitats
- Adoption of spatial plans of the areas characterized by distinctive feature for all national parks and nature parks, evaluation of the area from the nature protection standpoint, incorporation of nature protection requirements and measures, and information resulting from evaluation of the area, into physical planning documents

Republic of Croatia is a party (signatory country) of the UN Convention on Biological Diversity. In accordance with obligations arising from the Article 6 of the Convention, the Republic of Croatia prepared and adopted the **National Strategy and Action Plan for the Protection of Biological and Landscape Diversity (NSAP)** in 1999, and revised 2008. It was the first document which was providing guidelines in the nature protection policy in Croatia. The general strategic objectives outlined in the Strategy include inventorying, distribution mapping, threat assessment, formulation, and implementation of action plans for the protection and monitoring of species and habitats. One of the NSAP strategic goals is to continue on defining areas important for the preservation of endangered and rare habitat types in the framework of developing NATURA 2000 network. Strategic objective: Ensure long-term conservation of threatened and rare habitat types

Action plans

- Map marine habitats in marine areas under the jurisdiction of the Republic of Croatia
- Inventory and map threatened and rare habitat types and the habitat types listed in Annex I to the Habitats Directive that are important for the establishment of the NATURA 2000 network
- Define the important areas for conversation of the habitat types listed in Annex I to the Habitat Directive, and important areas for conservation of those habitat types proposed by the Republic of Croatia for inclusion in the amendments to Annex I, and ensure their inclusion in Croatia's proposed NATURA 2000 network
- Implement protection and monitor the state of threatened and rare habitat types and habitat types listed in Annex I to the Habitat Directive, including habitats proposed by Croatia for inclusion in amendments to Annex 1

In **2002 the Agriculture and Fishing Programme** was passed in the Croatian Parliament, through which they propose to direct the fishing effort towards the open waters and towards small pelagic species (anchovies, sardines, and sprats). Legal framework governing fisheries in the Republic of Croatia includes 3 laws – **Marine Fisheries Act (OG 56/10, 127/10, 55/11)**, **Freshwater Fisheries Act (OG 106/01, 7/03, 174/04, 10/05, 49/05-consolidated text**) and **Act on structural support and market organization in fisheries (OG 153/09, 127/10)**. In the sector of marine fisheries, the most important implementing regulations are governing technical measures, measures directed towards protection of resources through minimum catch and landing sizes as well as designation of specially protected areas or fisheries protected areas, determination of technical characteristics of fishing gears, manner of keeping and submission of fisheries-related data and manner of issuance of fishing licenses. Specific ordinances govern sport and recreational fisheries at sea, as well as subsistence and small coastal fisheries. In the sector of freshwater fisheries, the ordinances govern commercial fisheries (catch quotas, manner of issuance of licenses, fishing areas), sport and recreational fisheries (fishing rights and management of resources within the management areas awarded to right holders) and freshwater farming activities. Structural support and market organization ordinances govern issues related to all aspects and segments of fisheries production and sector organization. They regulate associations in fisheries (cooperatives and producer organizations), issues of marketing standards of fisheries products at first sales, manner of financing and implementation of structural policy measures. There are two main types of capture fisheries at sea in Republic of Croatia – commercial and non-commercial. Commercial fisheries encompass commercial fisheries sense strict and the new category of small scale coastal fishery, which is limited in terms of

gears and manner of operation. Non-commercial fisheries at sea include sport and recreational fisheries, and over a transitional period expiring at 31st December 2010, non-commercial fisheries include small scale artisanal fisheries for personal needs. The Fishing Fleet Register of Croatia includes 4039 vessels. The largest percentage of the fleet (over 80%) is comprised of vessels less than 12 m, which also constitute the largest segment of the fleet capacity in terms of power (some 50% kW). The most important part of total tonnage of Croatian fishing fleet belongs to purse-seiners, and the most important part of total power to multipurpose vessels. Total fleet power slightly exceeds 310.000 kW and total tonnage slightly exceeds 40.000 GT. The largest number of vessels was register as multipurpose vessels (over 45%). Purse seiners account for some 5% of fleet, and these vessels account for the largest percentage of the catches, while bottom trawlers account for some 14% of the fleet. Total catches of Republic of Croatia in 2008 was 48.976 tons, in 2009 55.319 tons, and in 2010 52.360 tons. Small pelagic species, sardines, and anchovy represent the largest part of the catch – over 80%. Out of the total catch, fish represent 96%, cephalopods some 2% and crustaceans and shellfish some 2%. There are 264 landing places, out of which 63 represent 95% of the catches. The most important landing places in 2010 for small pelagic species were Kali, Zadar, Biograd na moru and Pula, while for the demersal catches these were Mali Lošinj, Tribunj and Zadar. In addition to the commercial fisheries at sea, sport and recreational fishery represent an important segment of the fishery in Croatia. Farming of aquatic organisms in Republic of Croatia comprises marine aquaculture and farming in fresh (inland) waters. Marine aquaculture includes farming of finfish, pelagic fish, and shellfish. Total production reaches some 12.000 tons annually, with a total value of some 876 million kuna (120 million €). Total production in marine aquaculture in 2010 was 10.892 tons. Finfish farming involves a closed farming cycle, where the first phases take place in a hatchery, and then in the floating cages at sea. The farming activities are wide-spread in all Croatian coastal counties, but predominantly in Zadar County. Finfish farming is dominated by sea bass (*Dicentrarchus labrax*) and sea bream (*Sparus aurata*), with the production of these two species reaching some 5.000 tons annually. Major part of the production is placed on domestic market and the EU-market (Italy). The fish farmer register maintained by the MAFRD contains 30 companies that have farming facilities on a total of 47 locations. Farming of tuna (*Thunnus thynnus*) is based on capture of smaller wild tunas (8-10 kg) and their subsequent farming to the market size (30 kg and above). Farming takes place in floating cages at sea, in Split-Dalmatia County and dominantly in Zadar County. Annual production of tuna amounts to 4.000 tons and is exported almost entirely too Japanese market. The fish farmer register maintained by the MAFRD contains 5 companies having farming facilities on a total of 10 locations. Shellfish farming comprises farming of mussels (*Mytilus galoprovincialis*) and oysters (*Ostrea edulis*) on long-lines in specially controlled areas as those on the western coast of Istria, Novigrad Sea, Velebit Channel, Krka river mouth, Bay of Mali Ston and Malo more.

According to The Nature Protection Act Article 70, protective measures for protected areas shall constitute an integral part of the spatial plans, governance plans, management plans, and other regulations passed on the basis of this Act regulating the issues of protection, conservation, improvement and use of the national park, nature park and other protected areas. The protective measures relate to prohibition or restriction of projects in the space: building infrastructure objects; building new transit, utility, power, telecommunication and traffic facilities; excavation or filling in of land, excavation or extraction of stones, minerals, raw materials or fossils; disposal of waste and discharging wastewaters; modifying water

regimes; removal of deposited matter; economic utilisation of natural resources; land-improvement projects; removal of hedges and other components of nature; planting monocultures; collecting fungi and plants and parts thereof; disturbing, killing or capturing animals; hunting; fishing; circulation; sport and recreational activities; posting advertising or other signs; visiting and touring; and other activities which endanger a protected natural asset. *Exercises or other military activities likely to pose a threat to natural assets shall not be authorised in protected areas.* According to **Environmental Protection Act** (article 109), objectives related to preventing environmental pollution and limiting consequences of pollution shall be taken into consideration when preparing physical plans and making decisions in accordance with a regulation governing physical planning, in particular when selecting locations for new installations, establishing changes which have occurred in existing installations and planning new infrastructures such as roads, public areas and residential areas. Marine protection includes measures for the protection of the sea including the marine eco-system and coastal zones as a indivisible whole, prevention of projects harmful to the marine eco-system, prevention of sea pollution from the air, from land, from ships and prevention of the other pollution caused by maritime traffic, including pollution caused by dumping from ships or aircraft with the intention of sinking or incinerating at sea, and transboundary pollution as well as prevention of pollution caused by major accidents and removal of its consequences. Protection against marine pollution includes: management of the coastal zone, seabed and marine subsoil and marine environment, management of fish and other marine organisms so as not to cause damage to the marine environment; ensuring sustainable mariculture through permanent monitoring of the status and special protection of the respective areas of the sea, seabed and coastal shore as well as fulfilling obligations from international agreements. Protection of the coastal zone includes measures for the protection of coastal eco-systems and sustainable management of coastal resources. The State shall undertake all appropriate measures in order to prevent reduce and control pollution of the marine environment in accordance with Environmental protection act and special regulations.

In the context of the preparations for the commencement of the negotiations on full membership of Croatia to the European Union, the Croatian Ministry of the Sea, Tourism, Transport and Development has created the **Pre- Accession Maritime Transport Strategy (June 2005.)**. It is the result of the comparative analysis of the Croatian legislative, institutional, and economic system in the maritime sector with the corresponding systems valid in the European Union, which presents a unique programme of the implementation of the goals and objective set forth. Although regular and safe connections from the 49 inhabited Croatian islands to the mainland is an important issue for enabling sustainable growth in that part of Croatia, it is not just a question of economic development, but also of protecting the fundamental human rights of the island inhabitants. This Strategy derives from the Transport Development Strategy of the Republic of Croatia, 1999. It is based on the maritime transport sector gap analysis relative to the EU legal and economic inheritance and takes into account the European Commission Opinion of Croatia's Application for Membership of the European Union in the field of Maritime transport (*COM (2004) 257 final*) as well as the Council Decision on the principles, priorities and conditions contained in the European Partnership with Croatia (*COM (2004) 275 final*).

Taking into account the present status as well as the foreseeable overall development of the Republic of Croatia and the neighbouring countries, the Ministry has set out the following goals in the area of national and international shipping:

- Increase of frequency, reliability and quality of shipping services between the mainland and the islands and promotion of sustainable growth of the islands and their tourist industry;
- Establishment of shipping services between the mainland and the islands in the form of public service contracts through an unrestricted and transparent public procurement procedure;
- Renewal and modernization of the vessels engaged on international voyages;
- Re-flagging of Croatian-owned ships back to Croatian flag;
- Renewal and modernization of Croatian fishing fleet in order to reduce the average age of ships as well as to promote their operation in unsheltered/open sea areas of the Adriatic Sea and the Mediterranean;
- Renewal and modernization of passenger vessels up to 100 GT and excursion vessels up to 300 GT;

- **Security and defence (4-4)**

"Nothing in this Protocol shall prejudice national security and defence activities and facilities; however, each Party agrees that such activities and facilities should be operated or established, so far as is reasonable and practicable, in a manner consistent with this Protocol" (4-4).

The Ministry considers that safety of navigation and pollution prevention is the most important aspects of its responsibility for maritime sector. Consequently, in cooperation with other responsible institutions it will continue to work on improving safety, security, and environmental protection. As presented in the report of the Paris Memorandum of Understanding on Port State Control (Paris MOU on Port State Control) there are a number of old and/or substandard ships entering the Adriatic area. At the same time, the Croatian-flagged vessels, particularly vessels trading within the Croatian territorial sea, are also relatively old. The ports open for international transport face numerous obstacles while trying to satisfy the requirements concerning the port reception facilities for ship-generated waste and cargo residues. Wishing to successfully prevent any terrorist act against security of ships, persons or port facilities, the IMO ISPS Code, 2002., has been implemented in the Republic of Croatia in due time and fully in accordance with international standards. A significant field in maritime safety and environmental protection issues are relating to yachts and boats, mainly from the EU countries (more than 60,000 per annum) and sailing within the Croatian internal sea waters and territorial sea. The Ministry makes significant efforts to ensure safety of all persons aboard these craft. The Ministry of the Sea, Tourism, Transport, and Development will persist in assigning highest importance to the measures aimed at improving maritime safety, security, and environmental protection.

Taking into account the present status as well as the foreseeable overall development of the Republic of Croatia and the neighbouring countries, the Ministry sets the following as the basic goals in the area of the maritime safety, security, and environmental protection:

- Increase of the general level of safety on board Croatian-flagged ships and their inclusion in the White list of the Paris MOU;
- Recognition of the Croatian Register of Shipping in accordance with Directive 94/57 as amended;
- Introduction of the Vessel Traffic Monitoring and Information System (CVTMIS);
- Protection and maintenance of clean waters in the Adriatic Sea;
- Improvement of the maritime education and training system of seafarers;
- Continuous improvement of standards of living and work on board ships;

- Increase the level of environmental protection in ports, in accordance with the highest practical standards;
- Strengthening of administrative capabilities and operational effectiveness, particularly in respect of pollution prevention, pollution response and search and rescue operations;

✓ **In the practise**

The Istria County includes the low rocky coast of Western Istria, which is around 400 km in long including the islands, in addition to another part approximately 100 km long of Eastern coast which is steeper and has deeper waters. The waters adjoining Istria cover an area of approx. 3000 km^2 at the national level, besides another area of 3300 km^2 reaching its midline in the international waters. They represent most of the reproduction area of most fish species commercially interesting for fishery in the Northern Adriatic Sea. The typical fishing concerns soles, curled octopuses, mullets, scallops (in the area of Novigrad). Mariculture is principally present in the Lim and Budava bays, with installations of mussel farming and oyster farming. The mentioned sector of the Istria region has reached a production equal to one third of the National fished product.

According to **Physical Plan Region of Istria** (Article 149), Region has an obligation is determined for making the programs, studies and other documents, which are serving for conductance of the plan:

1. Agro ecological basis of County for the needs of development ecological agriculture
2. The studies of seizmotectonic zoning of the County
3. The studies of developing and special possibilities of the border areas of the County
4. *The Integrated Coastal Management Plan*

The coastal sea on the area of this plan is been categorized into two categories. In the first category is the sea in specially protected and very vulnerable areas (the areas of valuable natural heritage) and coastal sea of high quality. In the second category is the sea on the area of denser building of coastal zone (the sea in the zone of influence of shore waste water releasing, as an area outside the circle around the diphusor of drainage, with radius of 300 meters). The graphical map 3.3 is displaying the categorization of the sea.

The protection of the sea from pollution from the land is conducted in a way of limiting the building next to shore and with measures for interruption and reduction of the pollution from the land. In the very sensitive areas where the sea is of high quality (the sea of I categories), and is intended or it is used for mariculture, to restrict or to forbid the activities and the building close to shore and on the sea which are not intended for that activity. The mariculture is to be coordinated with receipting capacity of aquatorium, based on researches conducted. The size of harbours for nautical tourism is to be maximally restricted on the contact parts of the sea with these very vulnerable areas. On the areas where, the coastal sea is still of high quality, intended for swimming, sports and recreation, with coordinated and controlled development of tourism and for the economy in general, it is a obligation to maintain the existing quality of the sea.

3. ADDRESSING RISK

3.1 Integrating the "risk" element in coastal policies

- **Integrating a "risk" element in national strategy for ICZM (22)**

"Within the framework of national strategies for integrated coastal zone management, the Parties shall develop policies for the prevention of natural hazards" (22).

- **Taking risk into account in the implementation of ICZM (5e)**

"The objectives of integrated coastal zone management are to: (…) prevent and/or reduce the effects of natural hazards and in particular of climate change, which can be induced by natural or human activities" (5e).

Fifth National Communication of the Republic of Croatia under the United Nation Framework Convention on the Climate Change (January 2010)

United Nations Framework Convention on Climate Change adopted at the United Nations Conference on Environment and Development held in Rio de Janeiro in the year 1992. The Convention entered into force on March 21, 1994 and has 194 parties. The Republic of Croatia became a party to the Convention on 17 January 1996 when the Croatian Parliament passed the law on its ratification (OG, International Treaties 2/96). For the Republic of Croatia the Convention came into force on 7 July 1996. As a country undergoing the process of transition to market economy, Croatia has, pursuant to Article 22, paragraph 3 of the Convention, assumed the commitments of countries included in Annex I. At the session of the Conference of Parties (COP 3) held in Kyoto, the Protocol on the United Nations Framework Convention on Climate Change adopted on 11 December 1997, pursuant to Decision 1/CP.3. Nowadays the Kyoto Protocol has 190 parties, including 40 countries as parties of Annex I. The Republic of Croatia ratified the Protocol in April 2007 and entered into force on 28 August 2007. By ratifying the Protocol (OG, International Treaties 5/07), the Republic of Croatia, as the Protocol Annex B party, takes over the obligation of limiting the greenhouse gases emission in the period 2008-2012 to 95% of total emission in the base year, i.e. 1990.

The Republic of Croatia is, pursuant to provisions in Articles 4 and 12 of the Convention, obliged to create a national greenhouse gas inventory and periodically national communication on climate change, according to which it reports on performing the obligations from the United Nations Framework Convention on Climate Change.

The simulation of the future climate for the Croatian area performed by applying the regional climate model (RegCM, version 3) which, respecting the results of a global model provides an estimation of significant climate variables under a strong impact of soil configuration and local dynamic processes that a global model usually does not cover. Regardless of the season, ground temperature in Croatian area will increase in the future climate. In the colder part of the year, the warming will be somewhat higher over northern (continental) Croatia, while in the warmer period, it will be higher in coastal part of Croatia. The warming within the regional model is in conformity with the global model (whose data used for the starting and boundary conditions of the regional model); however, the warming amplitude is in general somewhat lower than in the global model. Climate changes, first of all general temperature increase, will cause a decrease in snow precipitation amounts along with the decrease of snow amount on the ground. A decrease of total precipitation amount will expect over the most part of the year, primarily in the coastal Croatia and the hinterland. In northern Croatia, a significant change in precipitation in future climate is not expected.

Although the Republic of Croatia belongs to a group of countries for which water issues are not a limiting factor of development, climate changes will cause problems in water supply and meeting the ever-growing drinking water requirements. Researches show that water resources in Croatia are already under challenge of climate change, as certain impacts and changes occur referred to water flow, evapotranspiration, underground water inflow, water level in rivers and lakes, water temperature etc. Results of global and regional models of climate change indicate changes in precipitation in Croatia.
The assumed climate changes may lead to changes in spatial distribution of forest vegetation reflected in the altered share of current forest types, possible disappearance of the existing or appearance of new types, change in the density of population of certain tree species, productivity of forest ecosystems, ecological stability, forest health condition, and the change in the overall productive and forest value. Croatian Adriatic coast, particularly islands, is a typical example of area where the common interconnection between water (precipitation) and fire is fully express. Effects of climate variability and disasters associated with weather conditions are more and more frequent in the whole world and in Croatia as well. Main issues in agriculture are associated with water availability and increased temperature as it follows:
• Increase of water insufficiency in agriculture
• Greater frequency of droughts
• Heat stresses issue
All natural disasters and climate variability resulted in economical damage. In a period from 2000 to 2007, Croatian counties reported damage on crops caused by extreme weather conditions in amount of EUR 1.4 billion. Therefore, a damage caused by existing climate conditions and climate variability has already an important impact on agriculture in Croatia. The cause may or may not be in climate change, but certainly indicates on current vulnerability. Little data is available in order to estimate consequences of agriculture practices and climate variables. There are a small number of crops models and economic models of agriculture sector, which could help in understanding the present and future level of sector vulnerability due to climate change.
Weather conditions of the last years less and less follow known annual and seasonal ranges and there are more and more extreme weather events not following average conditions. Analysis of climate change impacts on plants indicated in all climate zones an earlier flowering of observed plants in spring, which is a result of warmer winter and spring.

In the long term, the sea level increase could be potentially one of the most expensive climate change impacts on Croatian coast, along with impacts of warmer and dryer climate on tourism and on larger frequency of extreme weather conditions. There are two basic reasons of sea level increase:
• Total sea water volume is increased due to thermal expansion of sea water caused by surface warming.
• The Earth atmosphere warming causes rapid melting of the Earth ice cover and Alps glaciers, which contributes to increase of total sea water volume.
Both factors bring to a global sea level increase, affecting the Adriatic Sea as well. The measurements indicate constant sea level increase during the last decade. However, considering the shortness of monitored period, it is difficult to determine with certainty whether the level increase is a result of general sea level increase trend or just 10-year sea level variation. During the preparation of Human Development Report (UNDP), the area and

the type of land which would be covered by sea water or would be at risk of a flood, was analyzed according to two different sea-level rise scenarios – 50 cm and 88 cm. Preliminary results of the analysis for the first scenario (sea-level rise of 50 cm) show that more than 100 km^2 of the mainland will be flooded, and in the case that sea-level rises for 88 cm (second scenario), additional 12.4 km^2 will be under water. Probably the most endangered costal resources are freshwater areas and wetlands. In regard to of climate change adaptation, the timeframe within sea-level rise is expected, is a very important factor. Considering estimations for gradual sea-level rise, there is enough time to prepare and carry out measures and activities aiming to mitigate negative effects.
One of relatively new studies (Baric, Grbec, Bogner, 2008.) identified several areas, which will probably be vulnerable to a sea level increase at the Croatian coast, as it follows:
Cities (Nin, Zadar, area of Šibenik, Split, Stari Grad on the island of Hvar, Dubrovnik), rivers (*the Raša*, the Cetina, the Krka, the Zrmanja, the Neretva), lakes (Vransko jezero on the island of Cres, Vransko jezero near Biograd), *western Istria coast*, the island of Krapanj. Significant sea level-increase could endanger numerous commercial and fishing ports, contaminate coastal freshwater sources in karstic zone, disrupt touristic and recreate activities depending on coastal areas, etc. The existing system for the collection of data relating to the sea level changes, sea current directions, and forecasts of wind waves along the eastern Adriatic coast is to be improved. A mare graphic station founded in Bakar in 1929 and completely renewed in 2005 operates within the Geophysics Institute of the College of Science in Zagreb. The data registered by this station are regularly processed, published, and used in preparation of scientific and specialized papers.

Marine Ecosystem and Fish Resources
The impact of climate change on the Croatian fishery sector is complex, as the impacts are both positive and negative. They include changes in the marine environment, changes in the migration patterns of fish in the open sea (including pressure to cold-water species' migration), potential changes in the growing season and rearing time for farmed fish, and the potential increase of invasive species. Climate change-related warming may have the following implications for the Croatian fishing sector:
• Fish depletion in shallow areas of the Adriatic Sea
• Better recruitment of species that thrive in warm water
• Horizontal or vertical migration of cold water species into colder areas
• Introduction of new organisms that transmit disease or exotic or undesired species
Research of the Adriatic Sea has shown the impact of the water inflow from the Mediterranean Sea: changes in phytoplankton and zooplankton species composition, productivity increase of Adriatic, that otherwise have relatively low nutrient levels.

Human Health
Over the last decade, it has become apparent that changes in climate can contribute to disease and premature death throughout the world. The distribution and seasonal appearance of infectious diseases has changed, and the frequency of some has increased. A more frequent occurrence of heat waves will pose a serious threat to human health in future, especially as regards older people and chronic patients. Changes in immune system responses have occurred with the altered seasonal distribution of some allergenic pollen species. More hot and sunny days may also increase the impact of pollution in the future – especially by the increasing formation of ground-level ozone, which harms the lungs

(asthma). Future climate change, combined with increased pollution, may further alter ground-ozone levels and their corresponding impacts. Climate change stimulates the spread of diseases even outside their natural seats.

Global Climate Observing System (GCOS)
Global Climate Observation System (GCOS) established in 1992 and the Republic of Croatia, represented by the Meteorological and Hydrological Service, has been its member since. This system includes observation in all parts of the climate system – in the atmosphere, ocean, sea, and land. Global Earth Observation System of Systems (GEOSS) is a new initiative taken with the objective to co-ordinate and enhances all current observing systems on the global level in support of the requirements of user areas: natural disasters, health, energy, climate, water, weather, ecosystems, agriculture, and biodiversity. The Republic of Croatia joined the GEOSS in 2004.

Data Collection and Systematic Observations in Croatia
Croatian institutions that maintain observing systems in the climate segments of atmosphere, sea and land are: Meteorological and Hydrological Service, Ministry of Maritime Affairs, Transport and Infrastructure (airports and road transport), Ministry of Environmental and Nature Protection, Ministry of Construction and Physical Planning, Ministry of Health and Social Welfare, Institute for Medical Research, Public Health Institute, Institute for Oceanography and Fishery, Hydro graphic Institute, "Ruđer Bošković" Institute – Marine Research Centre, "Andrija Mohorovičić" Geophysical Institute, College of Science, as well as many other institutions and economic branches which run their own observing systems or individual stations.

Research into the Climate Change Impact by Areas
In Croatia, it is necessary to initiate a number of researches by areas, related to climate change impact and determination of adaptation measures. International cooperation, especially with neighbouring countries of similar interests is quite desirable.

Institutional arrangement for inventory preparation in Croatia is regulated in Part II of the **Regulation on Greenhouse Gas Emissions Monitoring in the Republic of Croatia (OG 01/07),** entitled National system for the estimation and reporting of anthropogenic greenhouse gas emissions by sources and removals by sinks. The Government of the Republic of Croatia adopted in May 2008 the „**Air Quality Protection and Improvement Plan in the Republic of Croatia for the period 2008-2011"(OG 61/08)** whose integral part is the Action Plan for the implementation of the Convention and Protocol with an action plan.
The Air Protection Act (OG 178/04, 60/08) determines measures and methods of organizing the implementation and control of air quality protection and improvement. The Act provides for the development of the Strategy **and Air Quality Protection and Improvement Plan (OG 61/08).** The Air Protection Act provides following mechanisms and instruments for the prevention and reduction of pollutions that affects the climate change, including:
• National allocation plan for the amounts of greenhouse gas emissions
• National greenhouse gas emission registry
• Emission trading system
• Joint implementation projects for the reduction of greenhouse gas emissions.

Pursuant to the **Act on Environmental Protection and Energy Efficiency (OG 107/03)** the Environmental Protection and Energy Efficiency Fund was established, with the aim to finance preparation, implementation and development of programmes and projects in the field of environmental protection, energy efficiency and use of renewable energy sources, including mitigation of climate change. The Fund has been operating since 1 January 2004. The necessary finance is provide from revenues raised by charges on environmental polluters, which includes charges on the emission of nitrogen oxides, sulphur dioxide, and carbon dioxide, charges on users of the environment, on environmental load by waste and special environmental charges on motor vehicles. List of legislative and bylaw other acts directly or indirectly associated with the climate change mitigation policy are:

- **Regulation on the monitoring of greenhouse gas emissions in the Republic of Croatia (OG 01/07)**
- **Regulation on unit charges, corrective coefficients and detailed criteria and benchmarks for determination of the charge for carbon dioxide emissions into the environment (OG73/07, 48/09)**
- **Ordinance on the method and deadlines for calculation and payment of the charge on carbon dioxide emissions into the environment (OG 77/07)**
- **Ordinance on the availability of data on fuel economy and CO2 emissions of new passenger cars (OG 120/07)**
- **Air Quality Protection and Improvement Plan in the Republic of Croatia for 2008-2011 (OG 61/08)**
- **Regulation on greenhouse gas emission quotas and the method of emission allowance trading (OG 142/08)**
- **Regulation on implementation of the Kyoto Protocol flexible mechanisms (OG 142/08)**
- **Plan on allocation of greenhouse gas emission quotas in the Republic of Croatia (National Allocation Plan) (OG 76/09)**

Within the framework of "Intelligent Energy for Europe Program" supported by the European Commission five energy agencies have been founded or their foundation was initiated, four of which being regional agency and one being local energy agency:

- North – West Croatia Regional Energy Agency;
- Regional Energy Agency Kvarner;
- *Istria Regional Energy Agency;*
- Regional Energy Agency of Slavonia and Baranja;
- Medjimurje Energy Agency (local agency)

Since within their scope of work agencies support energy management practice, advocate the concept of sustainability, raise awareness on energy efficiency and renewable energy sources, they could be considered as implementers of greenhouse gas emission reduction policy and measures. Until now more than 50 projects supported by regional energy agencies executed or are in process of execution. Range of services and main tasks of energy agencies are:

- Initiation, monitoring and execution of renewable energy and energy efficiency projects;
- Technical support to counties;
- Education of public and target groups;
- Preparation of documentation for application to EU funds and tenders;
- Application of projects to the Environmental Protection and Energy Efficiency Fund and other source of financing

Protection and Nuclear Safety (BMU) from Germany in cooperation with the Ministry of Environmental and Nature Protection (Ministry of Construction and Physical Planning) and Cities' Association performs activities within this project in the period from February 2009 till March 2011, including 15 local self-government units with corresponding counties.

The Contingency Plan for Accidental Marine Pollution (Official Gazette 92/08) is a sustainable development and environmental protection document which establishes the procedures and measures for predicting, preventing, restricting and preparedness for as well as response to accidental marine pollution and unusual natural marine phenomenon for the purpose of protecting the marine environment. The Contingency Plan is harmonised with international treaties governing the area of marine environment protection to which the Republic of Croatia is a party. The Contingency Plan will be implemented in case of accidental marine pollution caused by oil and/or oil mixture if the amount of pollution exceeds 2000 $m^{3,}$ hazardous and noxious substances, and in case of unusual natural marine phenomenon. A county contingency plan in case of accidental marine pollution, which is adopted by a county representative body, subject to prior approval of the central state administrative body in charge of environmental protection, shall be implemented in case of pollution caused by oil and/or oil mixtures if the amount of pollution does not exceed 2000 m^3 or sudden natural phenomena at sea of minor size and intensity. The Contingency Plan does not apply in case of radioactive pollution. Entities which participate in the implementation of the Contingency Plan are:

- Headquarters for the implementation of the Contingency Plan (hereinafter referred to as: the Headquarters),
- Maritime Rescue Coordination Centre - Rijeka (hereinafter referred to as: MRCC) and
- County Operational Centre (hereinafter referred to as: COC).

The County Operational Centre is the body responsible for the implementation of procedures and measures for predicting, preventing, restricting, achieving preparedness for and response to accidental pollution according to the county contingency plan as well as for operational participation in the implementation of the Contingency Plan and Sub-regional Plan. The scope and geographical coverage of the county contingency plan matches the county borders. The Contingency Plan shall be implemented in marine areas, on seabed and marine subsoil of the Republic of Croatia which include the maritime domain, internal sea waters, territorial sea, and the Protected Ecological and Fishery Zone (ZERP).

Predicting procedures encompass:

-monitoring of marine environment,
-designating and managing particularly sensitive sea areas (PSSAs),
-providing appropriate systems for control of maritime traffic,
- providing technical resources and services for the implementation of measures for preventing and restricting sea pollution,
-assessment of risk and sensitivity of the area covered by the Contingency Plan

Providing appropriate systems for control of maritime traffic

The following maritime traffic control systems are use for the purposes of the Contingency Plan: "Mandatory Ship Reporting System in the Adriatic Sea" (the ADRIREP) and Automatic Identification System (the AIS).

3.2 Tools for this integration

- **Vulnerability and hazard assessments (22)**

"The Parties (…) shall undertake vulnerability and hazard assessments of coastal zones"

Sub-regional Contingency Plan for Prevention of, Preparedness for and Response to Major Marine Pollution Incidents in the Adriatic Sea (the Sub-regional Plan)is the Contingency Plan whose objective is to establish a mechanism of joint cooperation via which the competent national bodies of the Adriatic countries will cooperate for the purpose of achieving harmonisation and joint actions in relation to prevention and response to accidental marine pollution, which affects or may affect the territorial sea, coasts and related interests of one or several Adriatic countries, or accidents which exceed available response capacities of each individual State. If marine pollution is likely to threaten the territorial seas and the areas of interest of other countries, the Headquarters immediately notifies operational bodies of other countries and REMPEC through the MRCC, that is, if the accident occurs:
-within the area of responsibility of the Republic of Croatia and if it s likely to cause or has caused pollution of other country's area,
-outside the area of responsibility of the Republic of Croatia, if there is a threat for the area of responsibility of the Republic of Croatia, according to assessment made by Headquarters,
-within the area of responsibility of the Republic of Croatia, when scope of action requires involvement of personnel and/or technical/material resources and equipment which, according to the assessment made by the Headquarters, surpasses the response capabilities of the Republic of Croatia

- **Adopting prevention, mitigation and adaptation measures (22, 23-1)**

"The Parties shall (...) take prevention, mitigation and adaptation measures to address the effects of natural disasters, in particular of climate change" (22).

"In conformity with the objectives and principles set out in Articles 5 and 6 of this Protocol, the Parties, with a view to preventing and mitigating the negative impact of coastal erosion more effectively, undertake to adopt the necessary measures to maintain or restore the natural capacity of the coast to adapt to changes, including those caused by the rise in sea levels" (23-1).

According to Environmental Protection Act, environmental risk is the value measured by the likelihood of a specific event occurring and the potential environmental damage it may cause. One of the main activities of Croatian Waters, based on the principle of sustainable development and conducted with the purpose of achieving integrated water management, are the protection from adverse effects of water . Erosion-prone areas are the areas where the surface water or groundwater causes washing away, undermining and collapsing of land, or similar adverse phenomena which may result in hazards to human lives, health, or property, and in disturbance of the water regime. Torrential watercourses are periodical watercourses, as well as permanent watercourses subject, due to rainfall and snow melting, to rapid changes of water discharge that may result in hazards to human lives, health and property, and in disturbance of the water regime.

- **Respecting carrying capacity as a tool for preventing risks (6b)**

"All elements relating to hydrological, geomorphological, climatic, ecological, socio-economic and cultural systems shall be taken into account in an integrated manner, so as not to exceed the carrying capacity of the coastal zone and to prevent the negative effects of natural disasters and of development" (6b).

Types of risks and threats may include all potential events and situations which may cause damage to the marine environment. Types of risks and threats that can result in marine pollution are:

- accidents at sea which include ship collision, grounding, fire, explosion, construction failure, accident during ship operation or other event aboard a ship or outside it and accidents on offshore maritime facilities,
- Accidents on submarine pipelines,
- Sunken ships and aircraft, -unusual natural marine phenomena,
- Aircraft or helicopter crashes into the sea,
- Accidents on shore installations and terminals

Assessment of risk and sensitivity of the area covered by the Contingency Plan Assessment of risk and sensitivity of the area covered by the Contingency Plan is prepared with a view to achieving efficiency in the implementation of Contingency Plan in relation to potential marine pollution and to determining priorities regarding protection and/or restoration of the marine environment and selecting the most appropriate measures for preventing and responding to marine pollution. ***A detailed assessment of risk and sensitivity mapping is prepared within the county contingency plan***.

Risk assessment includes:
- determination of high risks areas in relation to marine pollution (tankers' routes terminals, ports, anchorages, coastal installations and underwater pipelines, potential sources of accidental marine pollution, sunken ships and aircraft etc.),
- Estimated quantities of potential oil and/or oil mixture and hazardous and noxious substances releases and their effect on specially sensitive areas,
- determining the number and frequency of port entries by ships carrying oil and/or oil mixtures as well as hazardous and noxious substances, their cargo capacities (size) and traffic density of other ships,
- Analysis of oceanographic, hydrographical, and meteorological data,
-records of reported marine pollution incidents caused by oil and/or oil mixture, hazardous and noxious substances,
- Economic valorisation (of the consequences) of potential marine pollution

Monitoring of marine environment is caring out through:
-regular coordinated patrolling of the area covered by the Contingency Plan by vessels (sea-cleaning and other Coast Guard and harbour masters' offices vessels), fixed-wing aircraft, helicopters, unmanned aircraft, radars and satellites,
- Sampling and analysis of sea water in the area covered by the Contingency Plan,
- informing the public.

Designating and management of the particularly sensitive sea areas (PSSAs) In line with the Sub-regional Plan, the Headquarters and other countries shall:

- cooperate in relation to the designation of the particularly sensitive sea areas (PSSAs) in the area covered by the Contingency Plan,
- propose to IMO particularly sensitive sea areas, as well as Associated Protective Measures,
- control the traffic in the particularly sensitive sea areas or in their vicinity.

The following technical resources and services shall be providing for the implementation of procedures for predicting, as well as for the implementation of measures for preventing and restricting sea pollution:
- Radio communications network at sea (MRCC, harbour masters' offices and coastal radio stations),
- Meteorological service (Croatian Meteorological and Hydrological Institute, Maritime Meteorological Service),
- Service for monitoring of sea currents (Hydrographical Institute of the Republic of Croatia),
- Service for search and rescue (SAR) at sea (Service for Search and Rescue in the Republic of Croatia),
- Vessel Traffic Management Information System (VTMIS) (MRCC-Rijeka),
- Vessels, equipment and strike teams in case of assistance and support to ship in distress, marine pollution and fire at sea (legal persons and natural persons, National Protection and Rescue Directorate - Fire Fighting Service),
- Port reception facilities for ship generated waste (port authorities)
- reception facilities for recovered (polluted) material from the sea and shore (COCs in cooperation with competent county bodies, as well as legal persons and natural persons), -shoreline clean-up personnel (legal persons and natural persons, National Protection and Rescue Directorate - Civil Protection Service and, if necessary, volunteers), -emergency medical services for providing first aid and care to injured persons (emergency rescue and medical institutions),
-responsible services for securing the polluted areas (at sea and/or on the shore) imposing fishing bans as well as for restricting movement and activities of unauthorised persons in those marine areas (central state administrative body competent for internal affairs). County contingency plans contain lists of overall equipment and resources with defined locations and quantities of equipment and resources owned by a county as well as by legal persons and natural persons who participate or may participate in the response operations upon request by a COC or the Headquarters.

- **Preliminary assessments (6i, 23-2)**

"Preliminary assessments shall be made of the risks associated with the various human activities and infrastructure so as to prevent and reduce their negative impact on coastal zones" (6i)

"The Parties, when considering new activities and works located in the coastal zone including marine structures and coastal defence works, shall take particular account of their negative effects on coastal erosion and the direct and indirect costs that may result" (23-2).

Risk assessment includes:
- determination of high risks areas in relation to marine pollution (tankers' routes terminals, ports, anchorages, coastal installations and underwater pipelines, potential sources of accidental marine pollution, sunken ships and aircraft etc.),
- Estimated quantities of potential oil and/or oil mixture and hazardous and noxious substances releases and their effect on specially sensitive areas,

- determining the number and frequency of port entries by ships carrying oil and/or oil mixtures as well as hazardous and noxious substances, their cargo capacities (size) and traffic density of other ships,
- Analysis of oceanographic, hydrographical, and meteorological data,
-records of reported marine pollution incidents caused by oil and/or oil mixture, hazardous and noxious substances,
- Economic valorisation (of the consequences) of potential marine pollution

Sensitivity assessment includes:
-defining and mapping of the coastline type (pebble, sandy, rocky and alike),
-list and description of protected natural resources,
-list and description of resources at risk (commercial objects on shore and at sea, sport and recreational areas, tourist zones, fishing areas, maricultural zones, cultural heritage areas, and other),
- list of potential places of refuge according to the Plan of Providing Assistance to a Ship in Distress)
Sensitivity maps are prepared for each county and displayed in the GIS. The central state administrative body competent for the sea is in charge of preparing assessment of risk and sensitivity of the area, in cooperation with central state administrative bodies competent for environmental and nature protection.

- **Anticipating coastal erosion (23-3)**

"The Parties shall endeavour to anticipate the impacts of coastal erosion through the integrated management of activities, including adoption of special measures for coastal sediments and coastal works" (23-3).

The erosion is not specific for the Croatian Adriatic part.

- ✓ **In practise**

According to Physical Plan Region of Istria (article 137) the measures of special protection are: the criteria for applying the measures of protection of the people, natural and material values are based on geographical specifics, demographical specifics, achieved level of economical development, infrastructure and all public activities, as for constant evaluation of risk of natural disaster for people and areas, technical-technological and ecological disaster and wounds due to eventual war suffering.
Measures of special protection consist of basic and specific measures and demands.
Basic measures and demands of protection mainly integrated with principles and measures of area planning. Specifically measures and demands of protection consist in general:

a) Measures by which it is secured the protection of living, business, and other buildings, reducing their exposure and vulnerability from destruction (smaller height of the buildings, lesser density of building, more of the green surfaces, greater distance between the buildings and so on)
b) Measures , which are enabling more efficient evacuation, transfer, rescuing, settling, removing, and other measures of protection and rescuing of the people
c) Measures, which are enabling elastic transfer from one kind of traffic movement into other (from optimal to extraordinary conditions)
d) Measures, which are enabling location and restriction of the range of the consequences of some natural disasters and other incident-extraordinary conditions

e) Measures, which are enabling functioning and renewal of buildings in the case of damage

3.3 Setback zone

Establishing a coastal setback zone

1. In conformity with the objectives and principles set out in Articles 5 and 6 of this Protocol, the Parties shall endeavour to ensure the sustainable use and management of coastal zones in order to preserve the coastal natural habitats, landscapes, natural resources and ecosystems, in compliance with international and regional legal instruments.

According to the **Maritime demesne and seaports Act (OG 158/03, 141/06**) maritime demesne is a public asset of interest for the Republic of Croatia, enjoying its particular protection. Maritime demesne consists of internal sea waters and territorial sea, their seabed and subsoil, and a part of land that is by its nature intended for general use.

2. For this purpose, the Parties:

(a) Shall establish in coastal zones, as from the highest winter waterline, a zone where construction is not allowed. Taking into account, *inter alia*, the areas directly and negatively affected by climate change and natural risks, this zone may not be less than 100 meters in width, subject to the provisions of subparagraph (b) below. Stricter national measures determining this width shall continue to apply.

(b) May adapt, in a manner consistent with the objectives and principles of this Protocol, the provisions mentioned above :

1) for projects of public interest;

2) in areas having particular geographical or other local constraints, especially related to population density or social needs, where individual housing, urbanisation or development are provided for by national legal instruments.

(c) Shall notify to the Organization their national legal instruments providing for the above adaptations

The seashore extends from the seaward middle-water line and embraces the belt of land delimited by the line reached by the highest waves in storms as well as the part of the land that by its nature or purpose serves for exploiting the sea for seaborne trade and sea fishing as well as for other purposes related to exploitation of the sea and the width of which is no less than 6 m measuring from the line in horizontal distance from the seaward middle-water line. The seashore also encompasses a part of land derived from strewing, in the part which serves for exploiting the sea. National Hydrographical Institute established the seaward middle-water line.

3. The Parties shall also endeavour to ensure that their national legal instruments include criteria for sustainable use of the coastal zone. Such criteria, taking into account specific local conditions, shall include, inter alia, the following:

(a) identifying and delimiting, outside protected areas, open areas in which urban development and other activities are restricted or, where necessary, prohibited;

(b) limiting the linear extension of urban development and the creation of new transport infrastructure along the coast;

(c) ensuring that environmental concerns are integrated into the rules for the management and use of the public maritime domain;

(d) providing for freedom of access by the public to the sea and along the shore;

(e) restricting or, where necessary, prohibiting the movement and parking of land vehicles, as well as the movement and anchoring of marine vessels, in fragile natural areas on land or at sea, including beaches and dunes.

Physical Planning and Building Act (OG 76/07, 38/09, 55/11, 90/11, 50/12) prescribed the preparation of a specific coastal regulation. The key provisions of the Act include:
-Protected coastal area (PCA) instrument proclaimed including the coastal belt of 1000 meters on mainland and all islands, and a 300 m marine belt
-restrictive conditions for construction and legal extension within the PCA in new local physical plans
-any construction of residential or tourist buildings within PCA can take place only upon adoption of regulatory development plan approved by the County Planning Institute, the State Development Control Office and Ministry. No construction can take place before the land for public spaces (streets, public facilities) allocated and equipped with basic infrastructure
-New residential and tourist developments outside settlements are allow outside a 70 m coastal belt. Within this 70 m belt allowed interventions include: open public spaces such as recreation areas, playgrounds, seafront promenades and beaches, tourist catering and entertainment facilities, and coastal infrastructure (ports, dry marinas and other uses which by their very nature require coastal location).
-Tourism development planning is no longer local-level responsibility but was move up to the county plans

SECTION II: CHANGES IN GOVERNANCE METHODS FOR COASTAL ZONES

1. CONSOLIDATING INTEGRATION MECHANISM

1.1 Spatial integration

- **Taking into account the unity of the land-sea ecosystem (6a)**

"(…) the Parties shall be guided by the following principles of integrated coastal zone management: the biological wealth and the natural dynamics and functioning of the intertidal area and the complementary and interdependent nature of the marine part and the land part forming a single entity shall be taken particularly into account" (6a).

Key challenges to sustainable development of the Republic of Croatia, according to **Strategy for Sustainable Development of the Republic of Croatia (OG 30/09)**, is protection of the Adriatic Sea, coastal area, and islands. The sea is a large and important area of the Republic of Croatia (35.4% of the total surface area) both in relation to the protection of nature and the environment and the conservation of biodiversity as well as in relation to a large number of various activities (maritime transport, construction of transport and municipal infrastructure, tourism and nautical tourism, economic activities associated with fisheries). All of the above is of great importance and interest for the sustainable development of the Republic of Croatia. Reduce the loss of marine and coastal biodiversity and increase the number of protected areas is one of the activities for overall objectives of the Strategy for Sustainable Development of the Republic of Croatia. Additionally, transport connection of islands with the mainland as well as their mutual interconnection is insufficient and does not ensure the sustainable development of islands. *Overall Objective is* improved interconnection of all parts of the national territory and islands and the mainland so as to make the transport system sufficient for all economic, social and environmental needs of the Republic of Croatia while minimising their undesirable impacts on the economy, society and environment.

According to Article 109 of **Environmental Protection Act** physical plans are environmental protection instrument. Objectives related to preventing environmental pollution and limiting consequences of pollution shall be taken into consideration when preparing physical plans and making decisions in accordance with a regulation governing physical planning, in particular when selecting locations for new installations, establishing changes which have occurred in existing installations and planning new infrastructures such as roads, public areas and residential areas.

The State Institute for Nature Protection (SINP) (http://www.dzzp.hr) is the central institute dealing with expert tasks of nature conservation in Croatia. The Institute carried out a series of activities aimed at ensuring the lasting conservation and improvement of Croatia's natural heritage. Tasks of the SIMP include, among theirs, responsibility for organizing and implementing biodiversity inventorying, monitoring, and operating a Nature Protection Information System (NPIS), preparing proposal for National Ecological Network and NATURA 2000 network.

1.2 Intersectoral integration

- **Ensuring intersectoral coordination (5f, 7-2)**

"The objectives of integrated coastal zone management are to: (…) achieve coherence between public and private initiatives and between all decisions by the public authorities, at the national, regional and local levels, which affect the use of the coastal zone" (5f).

"Competent national, regional and local coastal zone authorities shall, insofar as practicable, work together to strengthen the coherence and effectiveness of the coastal strategies, plans and programmes established" (7-2).

In Croatia the regulatory system that governs sea areas is characterised by a sectoral approach of powers vested in national authorities-harbours, fishery and mariculture, navigation, energy, directorates and public companies managing particular resources. Although the spatial planning law requires the co-operation of the majority of institutions dealing with ICZM, this co-operation is only formal and thus not working properly in terms of the weighting of the different sectors' views and interests.

1.3 Institutional integration and governance structures

- **Ensuring institutional coordination (7-1a, 7-1b)**

"The Parties shall (…) ensure institutional coordination, where necessary through appropriate bodies or mechanisms, in order to avoid sectoral approaches and facilitate comprehensive approaches" (7-1a).

"The Parties shall (…) organize appropriate coordination between the various authorities competent for both the marine and the land parts of coastal zones in the different administrative services, at the national, regional and local levels" (7-1b).

Croatian Environment Agency (CEA) is an independent public institution established by a decision of the government of the Republic of Croatia to collect, integrate, and process environmental data. CEA has collaboration with other institutions in Republic of Croatia such as: Ministry of Environmental and Nature Protection, Ministry for Physical Planning and Construction, Ministry of Economy, Labour and Entrepreneurship, Ministry of the Sea, Transport and Infrastructure, Ministry of Tourism, Croatian Bureau of Statistics, Croatian Institute for Toxicology and Antidoping, Croatian National Institute of Public Health, Croatian Cleaner Production Centre, National Protection and Rescue Directorate, Energy Institute "Hrvoje Požar", Institute for Tourism, Vehicle Centre of Croatia. CEA has also collaboration with other international institutions such as:

- ETC –Land Use and Spatial Information (ETC-LUSI, Spain)
- EEA (European Environment Agency)
- JRC (Joint Research centre, Italy)
- UBA (Federal Environment Agency, Germany)
- VROM (Ministry of Housing, Spatial Planning and the Environment, NL)
- InfoMill (The Dutch knowledge centre for environmental legislation and policy)
- DCMR (Environmental Protection Agency, NL)
- Fondazione Minoprio – Regione Lombardia (Foundation for Professional Training, Research and Services, Region Lombardia, Italy)

According to Article 43 of **Environmental Protection Act** sustainable development and environmental protection documents are:

- Strategy for Sustainable Development of the Republic of Croatia,
- Environmental Protection Plan of the Republic of Croatia,
- Environmental Protection Programme and,
- Environmental Status Report

Sustainable development and environmental protection documents in the wider sense include strategies, plans, programmes and reports, which will be adopt or were already adopt pursuant to special regulations in individual sectors for individual environmental components and burdens.

Strategic objectives of sustainable use of natural resources are:

- Conserve biodiversity on agricultural land surface through sustainable management
- Ensure sustainable management of biological resources in the Adriatic Sea, taking into account of the need to conserve threatened species and habitat types

1.4 Science-management integration

- **Adopting science-based decisions (15-3)**

"The Parties shall provide for interdisciplinary scientific research on integrated coastal zone management and on the interaction between activities and their impacts on coastal zones (…). The purpose of this research is, in particular, to further knowledge of integrated coastal zone management (…) and to facilitate public and private decision-making".

The Ruđer Bošković Institute regarded as Croatia's leading scientific institute in the natural and biomedical sciences as well as marine and environmental research. It has continuously operated with the task of conducting fundamental research in the natural and biomedical sciences. Over 550 scientists and researchers in more than 80 laboratories pursuing research in theoretical and experimental physics, physics and materials chemistry, electronics, physical chemistry, organic chemistry and biochemistry, molecular biology and medicine, the sea and the environment, informational and computer sciences, laser and nuclear research and development. *The Centre for Marine Research* (CMR) of the Ruđer Bošković Institute in Zagreb is an interdisciplinary centre, whose activities are focused upon basic and applied oceanographic research, including the following areas: processes and dynamics within and between trophic levels (primary and secondary production, cycle of basic and biogenic elements); investigation of water mass dynamics; flora, fauna and animal communities (taxonomy, ecology and organism communities in natural and polluted areas); ecological, physiological and genetic research on marine organisms and the impacts of pollution; monitoring of pollution and marine water quality; investigation of eutrophication.

Institute of Oceanography and Fisheries from Split was the first national scientific and research institution dealing with research of the sea. The Institute carries out a very complex research in the fields of biological, chemical and physical oceanography, sedimentology, and fisheries biology and aquaculture. The aim of this research is extending the knowledge of the structure of different plant and animal populations in the Adriatic Sea, as well as their relation to various abiotic and biotic factors important for the balance of the Adriatic ecosystem, and the definition of coast-open sea interdependence, in order to recognize possible changes resulting from climatic and anthropogenic factors. The basic mechanisms of action of population dynamics, biology and ecology of marine organisms are also under research, especially the most economical fish species and edible invertebrates (crustaceans

and cephalopods), in order to determine the biologically acceptable level of their exploitation.
The activities of the *Institute for Marine and Coastal Research-Dubrovnik* are basic and concern the research of natural features in the Adriatic Sea and its coastline, particularly research into the structure and processes of ecosystems. The Institute also develops other activities, such as: monitoring living marine and land resources, monitoring sea quality, experimental rearing of plant and animal species with the aim of acquiring fundamental knowledge and studying the various stages of natural processes, maintenance and popularization of aquarium, maintenance and popularization of the Botanical Garden on the Lokrum island, formation of scientific and expert collections, as well as the organization of courses and lectures.
All Institutes are included from 1998. in project "*Adriatic" - Systematic Research of the Adriatic Sea as a Base for Sustainable Development of the Republic of Croatia*.

1.5 International integration
See Part IV.

2.INFORMATION, PARTICIPATION AND THE RIGHT TO LEGAL RECOURSE

2.1 Information
2.1.1 *Beneficiaries of information*
The ICZM Protocol provides for a right to information for "populations and any relevant actor" (Article 3-3). Who exactly these populations and relevant actors may be remains to be determined. In any case, the content of this particularly broad provision of the Protocol and the spirit that prevailed during negotiations call for the broadest definition possible of the populations and actors benefiting from the right to information.

The right to information on environmental issues, participation and the right to legal recourse based on the Convention on Access to Information, Public participation and Decision Making and Access to Justice in Environmental Matters. The Republic of Croatia ratified the Convention in December 2007. Under the sectoral legislation, the State ensures adequate access to information on spatial planning, assessment of the impact of proposed plans and programmes, environmental impact assessment, and public participation and the right to legal recourse.

2.1.2 *Scope of information*
- **Providing information on the Protocol (3-3)**

"Each Party shall adopt or promote at the appropriate institutional level adequate actions to inform populations and any relevant actor of the geographical coverage of the present Protocol" (3-3).

There was no practice up to now.

- **Providing information on strategies, plans and programmes (14-2)**

"With a view to ensuring such participation, the Parties shall provide information in an adequate, timely and effective manner" (14-2).

Pursuant to the **Right to Access Information Act (OG 172/03, OG 144/10, OG 77/11)** and *Environmental Protection Act* (OG 110/07), and in order to strengthen implementation of the

Aarhus Convention, CEA activities include public communication through the work of the Information Centre, redesigned and improved CEA website, answers to written inquiries or inquiries made by phone and e-mail and through the functioning of the Help Desk of the Environmental Pollution Registry (EPR). In addition to published reports on individual environmental components, publications, leaflets and regular CEA publications (The Environment in Your Pocket I – 2012, Croatian and English version, EIS Catalogue) will be published or available in electronic form.

- **Providing information based on education and awareness-raising (15-1, 15-2)**

"The Parties undertake to carry out, at the national, regional or local level, awareness-raising activities on integrated coastal zone management and to develop educational programmes, training and public education on this subject. 2. The Parties shall organize, directly, multilaterally or bilaterally, or with the assistance of the Organization, the Centre or the international organizations concerned, educational programmes, training and public education on integrated management of coastal zones with a view to ensuring their sustainable development" (15-1, 15-2).

Environmental education and sustainable development represent the essential components of life-long learning. The education system of the Republic of Croatia consists of the pre-school, primary, secondary, and university education. It is the view of the Ministry of Science, Education, and Sports responsible for institutional education that all school subjects and activities must contribute to the development of ecological awareness and environmental education of students. Regarding the above mentioned, the Sustainable Development Program has been implemented within the pre-school education, where children are educated on coexistence with nature, with every human being in order to develop environmental awareness of children. In the Republic of Croatia the primary school syllabus determines programmes of compulsory and optional courses for schoolchildren and guidelines for other forms of educational activities of primary schools. Environmental and sustainable development education is an activity integrated into teaching and other forms of work. The knowledge of climate changes acquired through regular primary school lessons in nature and society, nature, biology, chemistry and geography, including numerous out-of-school activities. Projects and programs regarding the environmental protection and sustainable development, such as GLOBE and SEMEP international programs, Eco-schools projects, *Young Environmental Keepers* national program, etc. provide thematic and content-related framework to environmental education activities, enable networking of schools of similar interests and provide mutual support and experience exchange. Since 1995, 130 schools of Croatia have been included in the scientific and educational programme GLOBE (Global Learning and Observation to Benefit the Environment), with schoolchildren performing regular and continuous measurements and observations in the environment. The application of information technology tools ensures connectivity and information exchange among over 23000 schools in 111 countries worldwide. International Eco-schools represent the program of Foundation for Environmental Education (FEE), recognized as one of the most successful environmental education models in the world. Non-governmental association Nature Friends Movement "Our Beautiful Homeland" acts as a national coordinator of this program. Over 300 primary and secondary schools, student homes and nursery schools from Croatia participate in this program, while 226 schools acquired the status of international Eco-school till now. In implementing programs at the level of entire schools in cooperation with parents and the local community special attention is given to

waste reduction and disposal, reasonable use of energy and water and arrangement of schoolyards.

The eco-quiz show "Our Beautiful Homeland" is a competition in knowledge, a meeting of schoolchildren of Croatia's primary and secondary schools organized by the association "Our Beautiful Homeland," Ministry of Science, Education and Sports and the Education and Teacher Training Agency of the Republic of Croatia. The objective of the quiz show is to develop the awareness of environmental protection and sustainable development at the level of primary and secondary schools. The competition levels are: school, county and national. The AWERES project (Awareness and Education in Renewable Energy Sources) of the Society for Sustainable Development Design, for two professional schools provides the equipment required for teaching on renewable energy sources – solar heating systems with all necessary measuring equipment, photovoltaic systems, wind generators and meteo-stations for measuring the meteorological indicators. Within the project, the Ministry of Science, Education, and Sports created and accepted new optional course "Renewable energy sources" implemented into professional technical schools. The "Renewable energy sources within my community" brochure created as the final project production and it will serve to associations, schools, managements and other interested organizations as a guide for promoting the renewable energy sources exploitation, in education, environmental protection, and sustainable development of the community. At the level of the universities, polytechnics, scientific and research institutes and other institutions the area of environmental protection, sustainable development, and climate change addressed through natural, technical, biomedicine, biotechnical, social, and humanistic sciences within the framework of numerous compulsory or elective courses of undergraduate and postgraduate studies. "Eco-engineering" course organized as a postgraduate interdisciplinary specialist study at the University of Zagreb. The postgraduate scientific studies in environmental protection are organized at the University of Zagreb: "Ecology" Department of the Division of Biology (Faculty of Science); "Environmental Protection" (Faculty of Mining, Geology and Petroleum Engineering) and "Protection of Nature and Environment" at the Josip Juraj Strossmayer University of Osijek. "Environmental Management" represents an international master and doctoral studies at the University of Zagreb. The Ministry of Environmental and Nature Protection, Ministry of Construction and Physical Planning issues periodically printed materials (manuals, educational booklets, picture-books) and supplies multimedia information on climate change issues and ozone layer protection to use for teaching in primary and secondary schools. According to the data provided by the Ministry of Environmental and Nature Protection, there are presently 630 non-governmental organizations registered for environmental protection and conservation activities in Croatia.

- **Providing information on research (16-4)**

"The Parties shall take all necessary means to ensure public access to the information derived from monitoring and observation mechanisms and networks" (16-4).

The public has access to all environmental information under the Arhus Convention. The environmental data regularly published in media, TV, special publications, web pages, or scientific papers.

On the 26th session held on 21 November 2009 the Government of the Republic of Croatia adopted the **Code on Consultations with the Public Concerned in the Process of Adopting Laws, Other Regulations, and Acts (OG 140/2009).**

On the basis of the Right of Access to Information Act-RAIA (OG 172/03) all public authorities have appointed one (or more) officials responsible for issues of exercising rights of access to information, including the provision of assistance and guidance to the public as regards the access to information, and for decisions to establish Catalogues of information which they possess or control or have available, and which contain a systematized overview of information accompanied by a description of the contents, the purpose, the method of providing and the time of exercising the right of access. The obligation to provide information and explanation in administrative matters is laid down by the **Civil Servants Act (OG 92/05, 142/06, 77/07, 107/07 and 27/08)**. Since the last report the Ministry of Environmental and Nature Protection (MENP) has strengthened mechanisms for providing public information about certain environmental sectors. This includes creation of a special website *National Air Quality Monitoring Network* that presents air quality data recorded by all measurement stations belonging to the national network. The website directly linked with measurement stations through a central base where measurement data updated and released on an hourly basis together with the reports on measurement data in form of hourly concentrations. The website of the MENP contains, among other things, the Register of Legal and Physical Entities Involved in Import/Export and Marketing of Controlled and Substitute Substances, Rehabilitation, Collection, Reclamation and Recovery. Information relating to establishment of the emission trading system and issuance of permits for greenhouse gas emissions from installations is also publicly available. On the website mentioned the plant operators may find all information relating to submission of applications, development of monitoring plans that form a constituent part of applications, and greenhouse gas emission permits, including frequently asked questions and responses given by experts as part of the technical support provided to operators when developing greenhouse gas emission monitoring plans. The Croatian Environment Agency (CEA) is in charge of coordinating and maintaining the Environmental Information System (EIS). The databases are publicly available through the CEA website. The database named the Pollutant Emission Register (PER) was prepared in 2009 in accordance with the **Ordinance on the Pollutant Emission Register (OG 35/08)**. The databases entitled the Registry of Installations in which Hazardous Substances Are Present (RIHSP) and the Major Accident Notification Record were prepared pursuant to the **Regulation on Preventing Major Accidents Involving Hazardous Substances (OG 114/08)** and the **Ordinance on the Registry of Installations in which Hazardous Substances Are Present and on the Major Accident Notification Record (OG 113/08)**. The highest public interest is shown in the segment relating to the databases of PER and RIHSP.

As part of the pre-accession negotiations with the European Union, the Directive 2003/35/EC of the European Parliament and the Council provide for public participation in drawing up of certain plans and programmes relating to the environment fully transposed into the national legislation. The principle of public participation is laid down by *the Environmental Protection Act* (Article 66 and 139-143) and the **Regulation on Information and Participation of the Public and the Public Concerned in Environmental Matters-RIPP (OG 64/08)** defining the method of public/concerned public information and participation (if participation of the public concerned is provided for by the law) in strategic assessment procedures; adopting plans and programmes for which strategic assessments are not carried out; drafting laws, executive regulations and other generally applicable and legally binding rules likely to have significant effect on the environment; carrying out environmental impact assessments for certain activities and establishing integrated environmental requirements for company's

installations. Activities listed in Annex I to the Convention correspond to the list of activities given in Annex I to the **Regulation on Environmental Impact Assessment (OG 64/08).**

In the procedure of strategic environmental impact assessment according to the **Regulation on the Strategic Environmental Assessment of Plans and Programmes (OG 64/08),** public information already ensured in the process of determining the contents of the strategic study, which is subject to public consultation, and the report on the strategic assessment communicated to the public. The Nature Protection Act provides that, in the process of preparing physical plans and natural assets management plans, nature protection requirements and measures must obtained from the competent Ministry and integrated adequately into the documents mentioned. Further, if the document referred to covers a protected part of nature, the approval obtained from the Ministry before it adopted. Public participation in the preparation and adoption of physical plans provided through preliminary and public consultations which are mandatory according to the Physical Planning and Building Act. In this way the public also provided access to the section relating to nature protection.

As a rule, strategic document proposals, and drafts, including other proposed laws and subordinate legislation in the process of preparation, published on official websites of government bodies. The public is invite to participate in their preparation by giving opinions, proposals, and comments within a precisely specified time. The comments are deal with and taken into account, which makes the operation of the committees or working groups involved in the preparation of documents transparent. Representatives of expert and scientific institutions often join the committees. Draft legislation is obligatorily forward for opinion to other bodies, stakeholder groups, associations, and individuals and published on websites.

From January 2010 to August 2011 the non-governmental organizations Gong and the Green Istria together with associations from Bosnia and Herzegovina (MPD initiatives), Montenegro (Mans), Italy (Adriatic GreeNet) and Belgium (European Environmental Bureau) were implementing the project "Implementation of the Aarhus Convention in the Adriatic Region Countries.“ The goal of project funded by the European Commission and partly by the Embassy of the Republic of Finland is to enhance the standards of applying the Aarhus Convention, especially in the segment relating to access to the justice in environmental matters. The main project activity is implementation of a specialized educational programme for judges, lawyers, and journalists from Croatia, Bosnia and Herzegovina, and Montenegro, selected through an international competition. The project is intended to strengthen the role of civil society organizations through development of partnership and networking of organizations involved in environmental protection and those involved in democratization and transparency, with the aim to ensure high quality surveillance of implementation of commitments under the Aarhus Convention.

2.2 Participation

2.2.1 *Principle of participation*

- **Declaration of the principle of participation (6d, 14-1)**

"Appropriate governance allowing adequate and timely participation in a transparent decision-making process by local populations and stakeholders in civil society concerned with coastal zones shall be ensured" (6d).

"With a view to ensuring efficient governance throughout the process of the integrated management of coastal zones, the Parties shall take the necessary measures to ensure the appropriate involvement (…) of the various stakeholders" (14-1).

The Physical Planning Act obliges the drafters of spatial documents to publicly unveil the draft documents so that the general public is give an opportunity to submit comments which the drafters must take into account or reject them with an explanation.

2.2.2 *Beneficiaries of participation*

Article 15-2 of the Barcelona Convention provides that "the Contracting Parties shall ensure that the opportunity is given to the public to participate in decision-making processes relevant to the field of application of the Convention and the Protocols, as appropriate". The ICZM Protocol extends the beneficiaries of participation beyond the public to include "the territorial communities and public entities concerned; economic operators; non-governmental organizations; social actors" (14-1). Special mention is also given to the inhabitants of islands in order to ensure their participation "in the protection of coastal ecosystems based on their local customs and knowledge" (12-a).

The Croatian islands include almost all islands on the east coast and the central area of the Adriatic, making the second largest archipelago in the Mediterranean. There are 1.185 of them, geographically divided into 718 islands, 389 rocks, and 78 ridges. The island Mali Lošinj has 6 566 inhabitants and is the only island settlement with more than 5 000 inhabitants. Ecosystems of the Croatian islands, their endemic plant and animal species and geological forms are extremely valuable. Thus, the list of the officially protected natural heritage is extremely long, given the relatively small total island area. Of the 7 Croatian national parks 3 are on the islands including the adjacent sea (Brijuni, Mljet, Kornati), and there is the Telašćica park of nature on the island of Dugi otok.

The main medium-term goals of the island economy (**National Island Development Programme**, February 1997) development are for the economic structure and households to be as versatile as possible. Series measures of fiscal policy created economic conditions for the achievement of these goals. These measures should aim at encouraging small and medium investors in activities which ensure a sustainable island development, the users of sustainable technologies and households who want to enlarge the number of their activities. Activities which should be encouraged on all Croatian islands through fiscal measures are:

∗ Environmentally friendly agricultural production on the existing and new plantations, in the open air and in enclosed facilities (cultivation of olives, viniculture, Mediterranean fruit growing, cultivation of carob, citrus fruits and medicinal and aromatic herbs, vegetables and flowers

∗ Small-scale and semi-intensive sheep and goat-breeding

∗ Bee-keeping

∗ Processing of agricultural products protected by geographical indication (sheep and goat milk cheese, honey, quality wines, olive canning, production of pure and extra pure olive oil, pharmaceutical and cosmetic semi-products, and products)

∗ Cultivation of shellfish, fish, and other sea animals
∗ Coral diving, sponge diving
∗ Stone quarries, stone-cutting
∗ Manufacture of sails and of fishing tools
∗ Production of island souvenirs
∗ Small-scale tourism in the existing renewed and adapted facilities
∗ Small ship-building, private shipping by sea, road, and air
∗ Private health services and private schools

The program for the sustainable exploitation of the island's land must be in accordance with the zoning document. On the level of feasibility studies they will also contain alternative investment proposals. In this way these programmes will help the island local self-government to attract investors in the sustainable island development. The Islands Act will provide for the obligation to bring island physical plans in line with the programmes of full and sustainable exploitation of island resources.

All authorities dealing with the development of the Croatian Adriatic must participate in the development of an Integrated Coastal Management Plan of Croatian.

2.2.3 *Scope of participation*

- **Ensuring participation in the formulation and implementation of coastal strategies, plans and programmes (14-1)**

"With a view to ensuring efficient governance throughout the process of the integrated management of coastal zones, the Parties shall take the necessary measures to ensure the appropriate involvement in the phases of the formulation and implementation of coastal and marine strategies, plans and programmes or projects, as well as the issuing of the various authorizations, of the various stakeholders (…)" (14-1).

There was no practice up to now.

2.3 The right to legal recourse

- **Recognising and providing for a right to legal recourse (14-3)**

"Mediation or conciliation procedures and a right of administrative or legal recourse should be available to any stakeholder challenging decisions, acts or omissions, subject to the participation provisions established by the Parties with respect to plans, programmes or projects concerning the coastal zone" (14-3).

According to the Croatian **Freedom of Information Act (OG 172/03**), every domestic of foreign natural and legal person is eligible to request an access to information. Citizens can request for any kind of information they need or find interesting. The public bodies can deny the access in particular cases if publication of such information could cause severe damage to life, health and security of people or environment, disable the implementation of monetary of economic policies, disable fair and impartial judging, etc. Public bodies are obliged to provide information. In Article 133 of the Environmental Protection Act the public authorities are required, within the framework of their competence, to regularly publish environmental information, including national reports on the state of the environment. All databases of the EIS are available to the public on the CEA website. Provisions on the access

to justice as referred to in Article 9 of the Aarhus Convention and may found in individual provisions of the laws of the Republic of Croatia. However, in case that a certain provision of the Convention contravenes a legal provision of the RC, the judges are bound to directly apply the provision contained in the Convention, because it has primacy over the law by its legal effects.

SECTION III: USE OF STRATEGIC PLANNING IN COASTAL ZONES

1. NATIONAL ICZM STRATEGY

1.1 General objective: formulating or strengthening national ICZM strategy

- **Formulating or strengthening a national strategy for ICZM (18-1)**

"Each Party shall further strengthen or formulate a national strategy for integrated coastal zone management (…) in conformity with the integrated management objectives and principles of this Protocol" (18-1).

There is no ICZM strategy in the Croatia.

- **Formulating or strengthening a national strategy for ICZM consistent with the Mediterranean Strategy for ICZM (17, 18-1)**

"The Parties undertake to cooperate for the promotion of sustainable development and integrated management of coastal zones, taking into account the Mediterranean Strategy for Sustainable Development and complementing it where necessary. To this end, the Parties shall define, with the assistance of the Centre, a common regional framework for integrated coastal zone management in the Mediterranean to be implemented by means of appropriate regional action plans and other operational instruments, as well as through their national strategies" (17).

"Each Party shall further strengthen or formulate a national strategy for integrated coastal zone management and coastal implementation plans and programmes consistent with the common regional framework" (18-1).

The basic physical planning positions are determined by the **Physical Planning and Building Act (OG 76/07, 38/09, 55/11, 90/11, 50/12**), the **Physical Planning Strategy of the Republic of Croatia (1997), and the Physical Planning Programme of the Republic of Croatia (1999).**
In the protected coastal area special criteria shall be applied, the aim of which is to strengthen practices of spatial protection and economy, as well as to prevent, within the possibilities of physical planning, various abuses of space which, sometimes, were rooted in planning documents.
According to article 48 of Environmental Protection Act, environmental protection documents are:

- Marine Protection Strategy
- International Plan in case of Sudden Sea Pollution

The Marine Protection Strategy shall set out and direct long term goals for the management of the marine environment based on the principles of sustainable development in accordance with overall economic, social, and cultural development on the territory of the State. The Marine Protection Strategy is not elaborated yet.

1.2 Content of the strategy

- **Formulating or strengthening a national strategy for ICZM including certain elements (10-1a, 12b, 18-2, 22)**

"The national strategy, based on an analysis of the existing situation, shall set objectives, determine priorities with an indication of the reasons, identify coastal ecosystems needing management, as well as all relevant actors and processes, enumerate the measures to be taken and their cost as well as the institutional instruments and legal and financial means available, and set an implementation schedule" (18-2).

"The Parties shall take into account in national coastal strategies (…) the environmental, economic and social function of wetlands and estuaries" (10-1a)

"The Parties undertake to (…) take into account the specific characteristics of the island environment and the necessity to ensure interaction among islands in national coastal strategies (…)" (12b)

"Within the framework of national strategies for integrated coastal zone management, the Parties shall develop policies for the prevention of natural hazards" (22)

The Physical Planning Strategy of the Republic of Croatia is a starting document for the interpretation of basic positions. According to it, the main starting point for planning the area of the Croatian Adriatic reduced to four requirements:
-protection of the area given precedence over other requirements and interests
-extension of building areas has to plan on sites away from the coast
-in the coastal area realisation of a public interest given precedence over other interests
-islands have to be planned as unique planning units, regardless of the number of local-self government units, while smaller uninhabited islands cannot be included in building areas

The Marine Protection Strategy shall contains the fundamental basis for directing and harmonising economic, technical, scientific, educational, organisational and other measures as well as measures for implementing international obligations, with the aim of protecting the marine environment and shall contain in particular:

- an assessment of the current status of the marine environment and of the effect of human activities on the environment,
- the criteria and requirements for determining good marine status
- the goals of marine environmental protection and the indicators,
- short-term and long-term measures for achieving good environmental status,
- programme for monitoring marine status,
- integrated coastal management

The Decision on the List of Waters of the First Order (OG 79-10) establishes the List of waters of the 1st order, which includes interstate waters, coastal waters, other major waters and canals, and torrential waters of significant power. Interstate waters are all the waters defined by Article 3 paragraph 1 item 40 of the Water Act, the area of whose basin exceeds 50 km^2 or the length of whose watercourse exceeds 20 km, classified as interstate waters. Watercourse in Istria County is Dragonja River. Coastal waters are all waters defined by article 3 paragraph 1 item 65 of the Water Act classified as coastal waters. Other major waters and canals are a body of water whose basin exceeds 200 km^2 or whose length exceeds 20 km classified as watercourse. In Istria County there are Mirna and Raša rivers. Canals are all artificial water bodies of higher significance for flood control and irrigation classified as canals. In Istria County there are peripheral canals (encircling 2 and 3) of Čepić

polje, peripheral canals no2 Donja Raša, peripheral canals no5 Donja Raša, Srednja Mirna peripheral canal, Butoniga relief canal. All waters of greater significance for irrigation of large karst classified as sinking rivers. In Istria County there is Pazinski potok. Water bodies of larger significance for flood control and irrigation or whose volume exceeds 500 000 m^3 shall be classified as reservoirs and retentions. In Istria County there is Butoniga reservoir and Čepić retention.

- **Defining indicators for the implementation of national coastal strategy, plans and programmes (18-4)**

"The Parties shall define appropriate indicators in order to evaluate the effectiveness of integrated coastal zone management strategies, plans and programmes, as well as the progress of implementation of the Protocol" (18-4).

There were no defined indicators because in Croatia still missing National Coastal Strategy.

1.3 Formulation procedure

- **Participating in the formulation and implementation of national coastal strategy, plans and programmes (14-1)**

"(…) the Parties shall take the necessary measures to ensure the appropriate involvement in the phases of the formulation and implementation of coastal and marine strategies, plans and programmes (…) of the various stakeholders, including: the territorial communities and public entities concerned; economic operators; non-governmental organizations; social actors; the public concerned. Such participation shall involve *inter alia* consultative bodies, inquiries or public hearings, and may extend to partnerships" (14-1).

The Marine Protection Strategy shall be draw up by the Ministry in cooperation with central state administration bodies competent for: the sea, tourism, transport and development, the economy, agriculture, forestry, water management, nature science and health. The Ministry shall coordinate the development of the Marine Protection Strategy. The Croatian Parliament, upon the proposal of the Government, shall adopt the Marine Protection Strategy. Prior to its adoption, the Marine Protection Strategy shall be published on the web site of the Ministry and after adoption it shall be published the Official Gazette. Amendment to the Marine Protection Strategy or a new Marine Protection Strategy shall be adopted for a ten year period, on the basis of the analysis of the efficiency of measures undertaken and of the environmental status from the Environmental Status Report, and sooner if needed, upon the proposal of the Ministry.

- **Transboundary cooperation for the coordination of national coastal strategy, plans and programmes (28)**

"The Parties shall endeavour (…) to coordinate, where appropriate, their national coastal strategies, plans and programmes related to contiguous coastal zones. Relevant domestic administrative bodies shall be associated with such coordination" (28).

National Coastal Strategy not yet adopted for Croatia and there was no transboundary cooperation for the national coastal strategy.

2. COASTAL PLANS AND PROGRAMMES AS TOOLS FOR IMPLEMENTING NATIONAL STRATEGIES

2.1. Form of coastal plans and programmes

- **Formulating or strengthening coastal plans and programmes (18-1)**

"Each Party shall further strengthen or formulate a national strategy for integrated coastal zone management and coastal implementation plans and programmes consistent with the common regional framework and in conformity with the integrated management objectives and principles of this Protocol" (18-1).

In Croatia there is no specific maritime physical planning.

- **Formulating or strengthening coastal plans and programmes to implement the national strategy (18-3)**

"Coastal plans and programmes, which may be self-standing or integrated in other plans and programmes, shall specify the orientations of the national strategy and implement it at an appropriate territorial level, determining, *inter alia* and where appropriate, the carrying capacities and conditions for the allocation and use of the respective marine and land parts of coastal zones" (18-3).

Marine activities are co-ordinated by 7 different Ministries:

- Ministry of Environmental and Nature Protection
- Ministry of Construction and Physical Planning
- Ministry of the Maritime affairs, Transport and Infrastructure
- Ministry of Economy, Labour and Entrepreneurship
- Ministry of Agriculture, Fisheries and Rural Development
- Ministry of Tourism
- Ministry of Culture

and several governmental institutions.

The following acts must be taken into consideration when we talking about coastal plans and programmes: the Physical Planning and Building Act, the Maritime Code, the Maritime demesne and seaports Act, the Marine Fisheries Act, the Environmental Protection Act, the Nature Protection Act, the Water Act, the Islands Act, the Contingency Plan for Accidental Marine Pollution.

The following strategies must also be taken into consideration: the Strategy and Action Plan for the Protection of Biological and Landscape Diversity, the National Islands Development Program, the National Environmental Protection Strategy, Strategy for sustainable development of Croatia, the Physical Planning Strategy, the nautical tourism development Strategy, the Waste Management Strategy, the Agriculture and Fishing Programme, the Maritime Transport Strategy.

The National Strategy is not elaborated yet.

SECTION IV: STRENGTHENING REGIONAL COOPERATION

1. PRINCIPLE OF COOPERATION

1.1. Obligation to cooperate

Inter-State cooperation is a founding and fundamental principle of international environmental law, and is of particular importance where enclosed or semi-enclosed seas are concerned. The Protocol therefore contains several provisions aimed at encouraging and strengthening regional cooperation on ICZM.

- **Strengthening regional cooperation for ICZM**

In the framework of the IIIA Interregional Adriatic Cross-border Programme, Axis 2 – Economical integration of the cross-border production systems, Measure 2.1 – Improvement of competitiveness and cooperation, the ADRI.BLU Project - BLU ADRIatic Table for the sustainable management of the fishing activities and fishing resources of the Adriatic Sea forms part of the wider context of interregional and transnational cooperation in the fishing sector of the Northern Adriatic Sea linking the Regions of the frontier Countries in the carrying out of the Northern Adriatic Pilot Plan in agreement with the European Committee, the European Parliament and the Ministry of Agriculture and Fishing. The partnerships made up of:

- Region of Emilia-Romagna, Productive Activities Department
- Regional Fish Economy Service (leader of the project);
-Autonomous Region of Friuli Venezia Giulia – Central Department for Farming, Natural, Forest and Mountain Resources – Fishing and Aquiculture Service;
- Region of Veneto, Regional Office of the Primary Sector – Hunting & Fishing Planning Unit;
- Syndacate UNIPROM;
- Region of Istria - Regional Council for Agriculture, Forests, Hunting, Fishing and Water;
- Coastal-mountain County - Council for Marine, Transports and Communications;
- Chamber of Commerce of the Federation of Bosnia and Herzegovina;
- NORFISH – Norwegian/Bosnian Fish Farm;
- Municipality of Izola (as observer).

The ADRI.BLU Project (www.altoadriatico.com) has set itself the goal of boosting a cross border process of sustainable socio-economical development of the fishing sector in the Northern Adriatic Sea subsequent to specific coordination and planning measures which have favoured the qualification of the entrepreneurial initiatives of the Northern Adriatic Sea in a general context of actual increase in the sustainability of fishing activities.

The ADRI.BLU project outlines thus some lines and realizes concrete operational processes representing in short a model applicable also in the Mediterranean Sea according to georeferred territorial scopes constituting an institutional reference of governance shared among the coastal regions and a development system of the fish economy applying the planning of the respective governs and the EU Directives for the Mediterranean Sea.

1. promoting the coordination among the regional institutions of the Northern Adriatic Sea for an integration and harmonization of the fishing policies at the cross-border level aiming at creating a framework favourable to the development of the SMEs of the fishing sector;
2. favouring the organization and coordination of the fishing sector through the realization of specific instruments for the guideline and management of the natural resources and

fishing activities partly based upon the use of information technologies aiming at favouring an integration among the fishing firms of the area;
3. Promoting and boosting the sustainability of the fishing activities through the realization of infrastructures for a widespread increase of biodiversity in favour of the SMEs of the Northern Adriatic Sea;
4. Creating new chances of development for the SMEs of the sector through a diversification of the traditional fishing activities consequent to the application of rational policies for the management of the sector;
5. Creating new trading, production, and innovation exchange opportunities among the cross-border SMEs of the fishing sector as a consequence of the meeting actions among firms;
6. Increasing at the cross-border level the information of the operators of the fishing sector as regards the responsible management of the resources and innovative activities for the fishing sector

1.2 Special instruments for cooperation

- **Exchange of information (23-4, 27)**

"The Parties undertake to share scientific data that may improve knowledge on the state, development and impacts of coastal erosion" (23-4)

"The Parties undertake, directly or with the assistance of the Organization or the competent international organizations, to cooperate in the exchange of information on the use of the best environmental practices" (27-1)

"With the support of the Organization, the Parties shall in particular: (a) define coastal management indicators, taking into account existing ones, and cooperate in the use of such indicators; (b) establish and maintain up-to-date assessments of the use and management of coastal zones; (c) carry out activities of common interest, such as demonstration projects of integrated coastal zone management" (27-2).

There is no exchange information, because Croatia is not yet defined indicators for coastal zone.

- **Cooperation on training and research (25)**

"The Parties undertake, directly or with the assistance of the Organization or the competent international organizations, to cooperate in the training of scientific, technical and administrative personnel in the field of integrated coastal zone management, particularly with a view to: (a) identifying and strengthening capacities; (b) developing scientific and technical research; (c) promoting centres specialized in integrated coastal zone management; (d) promoting training programmes for local professionals" (25-1).

"The Parties undertake, directly or with the assistance of the Organization or the competent international organizations, to promote scientific and technical research into integrated coastal zone management, particularly through the exchange of scientific and technical information and the coordination of their research programmes on themes of common interest" (25-2).

There is no training and research, because Croatia is not established Integrated Coastal Zone Management yet.

- **Scientific and technical assistance (26)**

"For the purposes of integrated coastal zone management, the Parties undertake, directly or with the assistance of the Organization or the competent international organizations to cooperate for the provision of scientific and technical assistance, including access to environmentally sound technologies and their transfer, and other possible forms of assistance, to Parties requiring such assistance" (26).

There is no scientific and technical assistance, because Croatia is not established Integrated Coastal Zone Management yet.

2. FIELDS OF REGIONAL COOPERATION

2.1 Cooperation on strategic planning in the region

- **Cooperation for the definition of a Mediterranean Strategy for ICZM (17)**

"The Parties undertake to cooperate for the promotion of sustainable development and integrated management of coastal zones, taking into account the Mediterranean Strategy for Sustainable Development and complementing it where necessary. To this end, the Parties shall define, with the assistance of the Centre, a common regional framework for integrated coastal zone management in the Mediterranean to be implemented by means of appropriate regional action plans and other operational instruments, as well as through their national strategies" (17).

- **Cooperation for the implementation of transboundary environmental assessments (29)**

"Within the framework of this Protocol, the Parties shall, before authorizing or approving plans, programmes and projects that are likely to have a significant adverse effect on the coastal zones of other Parties, cooperate by means of notification, exchange of information and consultation in assessing the environmental impacts of such plans, programmes and projects, taking into account Article 19 of this Protocol and Article 4, paragraph 3 (d) of the Convention" (29-1).

"To this end, the Parties undertake to cooperate in the formulation and adoption of appropriate guidelines for the determination of procedures for notification, exchange of information and consultation at all stages of the process" (29-2).

- **Cooperation for the coordination of coastal strategies, plans and programmes (28)**

"The Parties shall endeavour, directly or with the assistance of the Organization or the competent international organizations, bilaterally or multilaterally, to coordinate, where appropriate, their national coastal strategies, plans and programmes related to contiguous coastal zones. Relevant domestic administrative bodies shall be associated with such coordination" (28)

The Joint Commission for the protection of the Adriatic Sea and coastal areas established in 1977 under the Agreement on Cooperation for the Protection of the Adriatic Sea and coastal areas from pollution concluded in 1974 between the former Yugoslavia and Italy to address environmental issues in the Adriatic region in a multidisciplinary manner. The Republic of Croatia is a party to the Agreement on Co-operation pursuant to the succession of international agreements, and other member states of the Commission are the Republic of Slovenia, the Italian Republic, and Montenegro. Each state appoints a chairperson and members of the Commission. Experts whose work concerns issues of protection of the Adriatic also participate in the work of the Joint Commission. The Commission considers all issues relating to pollution of the Adriatic Sea waters and coastal areas, makes proposals and

recommendations to governments on the issue of research it considers necessary, gives an opinion on programmes and takes care of their alignment, proposes to the governments what measures should be taken in order to remove existing and prevent new causes of pollution of the Adriatic Sea.

So far the Commission has dealt with following activities:

- working together on a continuous examination of the Adriatic Sea ecosystem,
- cooperation and mutual direct assistance in combating pollution incidents and special protection of sensitive areas as well as adoption of a common (sub-regional) Contingency Plan for accidental pollution of the Adriatic (Sub regional Contingency Plan was signed in 2005 in Portorož)
- establishing a traffic separation scheme and establishing of sailing routes in the Adriatic,
- identification and control of pollution caused by inadequate handling and disposal of solid and hazardous waste,
- cooperation concerning revitalization and protection of environmental values (landscape, nature and construction heritage),
- remediation of the most burdened areas (Po, Bay of Trieste, Bay of Koper, Rijeka Bay, Kaštela Bay) and other areas of larger cities, industrial zones and ports,
- cooperation in preventive protection and further implementation of development strategies aligned with resource conservation,
- information activities,
- solving the issue of ballast waters in the Adriatic

The Commission's work currently takes place in three sub-committees:

- Within the framework of the **Sub-Commission for ballast waters**, which also provides support to activities of the GloBallast (UNDP / GEF / IMO) project, activities developed the Adriatic ballast water management strategy.
- **Sub-Commission for the preparation of addendums to the Sub-regional contingency plan** began work in 2009 with the aim of preparation of technical addendums for the implementation of the **Sub-regional contingency plan for the prevention of, preparedness for and response to larger scale pollution incidents in the Adriatic**. The Sub-regional Plan was drawn up with the technical assistance from the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC), the Mediterranean Action Plan of the United Nations Environment Programme (UNEP / MAP), as part of an initiative to develop a sub-regional system for the entire Adriatic Sea. The signatories of the Agreement on the sub-regional contingency plan are Croatia, Italy and Slovenia. The purpose of the Agreement is to establish a joint cooperation mechanism by which the national authorities in Croatia, Italy and Slovenia will coordinate and unify their actions in preventing and responding to sea pollution that affect or could affect the waters under their jurisdiction, the coast and related interests of one or more of these countries, or accidents that exceed the available capacity for response of each individual country.
- **The Sub-Commission for the Unification of methods of assessment and development of indicators to assess the state of the marine environment** established with the aim of coordinating activities and exchanging information

among countries of the Adriatic on the implementation of the EU Directive on Marine Strategy. This sub-commission shall examine and harmonize existing monitoring programmes, the list of indicators and methodologies to select the most suitable for the Adriatic and to facilitate exchange and comparison of data.

The Joint Committee meets once or twice per year and each year another member takes over the hosting. The last meeting of the Commission was held on 25 May 2010 in Ancona under the chairmanship of the Italian Republic and on this occasion the Sub-Commission for integrated coastal zone management was established and Montenegro became a full member of the Commission. After the meeting Slovenia took over the presidency of the Commission.

The Adriatic-Ionian Initiative was established at the Conference on the Development and Security in the Adriatic and the Ionian Sea in Ancona on 19 - 20 May 2000, at which the Ancona Declaration was adopted by which member countries committed to co-operate in order to strengthen peace and security in this part of Europe, good neighbourly relations, economic development, land transport connections, eliminate all forms of crime, technical assistance, environmental protection, health and cultural co-operation, tourism development and maritime co-operation. The Adriatic-Ionian Council established at the ministerial level, and it decides on all basic and specific issues, including the areas and forms of co-operation between the Initiative member states, co-operation with other international organizations and initiatives, as well as political issues in the region. The Initiative's work carry out through round tables which are divided in four thematic units: Round Table for Environment and Fire Protection, Round Table for Tourism, Culture and Interuniversity Co-operation, Round Table for Small- and Middle-Sized Entrepreneurship and Round Table for Transport and Maritime Affairs. During its second presidency (May 2007 - May 2009) of the Adriatic-Ionian Initiative Croatia was focused in its programme on the revision of current co-operation. Efforts focused on the establishment of a new and clearly recognizable identity of the Adriatic-Ionian Initiative. Areas of co-operation were determined whereby small and middle-sized entrepreneurship, transport connectedness, environmental protection, and fire protection constitute the fundamental backbone, instead of the present six round tables. A new Rules of Procedure of the Round Tables passed which was adapted to the redefined areas of cooperation, as well as the Rules of Procedure of the newly established Permanent Secretariat of the Adriatic-Ionian Initiative, which began work on 1 June 2008, the last day of the Croatian presidency. Montenegro assumed presidency of the Adriatic-Ionian Initiative in June 2010.

On the occasion of the tenth anniversary of the **Euro-Mediterranean Partnership**, at the Summit held in Barcelona in November 2005 the parties of the partnership have expressed their commitment to intensify efforts to reduce pollution of the Mediterranean Sea by 2020 through the Horizon 2020 initiative. At the Conference of environment ministers in Cairo in November 2006 a Work programme for the Horizon 2020 (2007 - 2013) was adopted which is one of the key initiatives within the Union for the Mediterranean which is the current name of the Euro-Mediterranean Partnership. The aim of the initiative is to reduce pollution of the Mediterranean Sea so that the most significant sources of pollution, such as municipal waste, sewage, and emissions from industries that are responsible for 80% of pollution of the Mediterranean Sea are resolved in an appropriate manner. For implementation and monitoring of the Work Programme for 2007 - 2013 three operational components formed:

component for investment in pollution reduction projects, component for capacity building and component for the assessment, monitoring, and research. Responsible for implementing the initiative is the Steering Committee which consists of the European Commission members, responsible person for this topic from EU Member States, the competent persons for the European Neighbourhood and Partnership Instrument (ENPI), members of international governmental organizations, international financial institutions, NGOs, local authorities, private sector and the competent person for Horizon 2020 from Albania, Bosnia and Herzegovina, Croatia, Montenegro and Turkey.

2.2 Cooperation in certain specific fields

- **Cooperation for environmental education (15-2)**

"The Parties shall organize, directly, multilaterally or bilaterally, or with the assistance of the Organization, the Centre or the international organizations concerned, educational programmes, training and public education on integrated management of coastal zones with a view to ensuring their sustainable development" (15-2).

- **Participating in a Mediterranean coastal zone network (16-2)**

"In order to promote exchange of scientific experience, data and good practices, the Parties shall participate, at the appropriate administrative and scientific level, in a Mediterranean coastal zone network, in cooperation with the Organization" (16-2).

- **Coordinating equipment for detection, warning and communication concerning major natural disasters (24-2)**

"The Parties undertake to coordinate use of the equipment for detection, warning and communication at their disposal, making use of existing mechanisms and initiatives, to ensure the transmission as rapidly as possible of urgent information concerning major natural disasters. The Parties shall notify the Organization which national authorities are competent to issue and receive such information in the context of relevant international mechanisms" (24-2)

- **Landscapes (11-2)**

"The Parties undertake to promote regional and international cooperation in the field of landscape protection, and in particular, the implementation, where appropriate, of joint actions for transboundary coastal landscapes" (11-2)

- **Marine habitats (10-2b)**

"The Parties (…) undertake to promote regional and international cooperation for the implementation of common programmes on the protection of marine habitats" (10-2b)

- **Promoting cooperation for disaster management (24)**

"The Parties undertake to promote international cooperation to respond to natural disasters, and to take all necessary measures to address in a timely manner their effects" (24-1).

"The Parties undertake to promote mutual cooperation and cooperation among national, regional and local authorities, non-governmental organizations and other competent organizations for the provision on an urgent basis of humanitarian assistance in response to natural disasters affecting the coastal zones of the Mediterranean Sea" (24-3).

The project „Maritime Safety: Strengthening of Administrative Capacity, Vessel Traffic Monitoring and Management"(total value of project: € 2.55 million), to be conducted within the PHARE Programme for pre-accession assistance for the year 2005. The project is designed to complete the existing AIS system (Automatic Identification of Ships) by the installation and integration of additional 13 radio-communication stations along the Adriatic

Coast and fitting other information and communication equipment amounting to a total of € 1.5 million (of which € 1.1 million is funded from the PHARE Programme), as well as to introduce an expert and technical support in providing IT/statistical and operational solutions for the CVTMIS system, education and training of the Ministry personnel and design of a system development study valued at € 1.0 million (to be completely funded from the PHARE Programme).

The implementation of this Project by mid 2008 is to result in the establishment of an organizational and technological system for monitoring all vessels exceeding 300 GT in the internal sea waters, the territorial sea, and the Protected Ecological and Fishery Zone of the Republic of Croatia. This is to have a direct impact on the reduction of marine accidents, enhancement of the efficiency of SAR operations at sea and reduction of pollution of the sea from ships, allowing an exchange of information with the corresponding European Commission bodies. When installed, the system will also have positive effect on the business operation of the ports and combined transport.

The Project „Maritime Safety: Strengthening of Administrative Capacity, Vessel Traffic Monitoring and Management -Phase Two“(total value of project: € 9.00 million) is to be conducted within the Phare programme's preaccess assistance for the year 2006 and 2007.

The Project envisages the completion of the Croatian Vessel Traffic Monitoring & Information System (CVTMIS) including radar, RDF, communication and power supply subsystems, as well as the shipping forecast subsystem. The implementation of the project by 2010 is to ensure an overall and functional control of vessel traffic.

- Extension of competences of the inspectors responsible for the application of ship Inspection measures over Croatian-flag and foreign vessels entering into Croatian ports;
- Education and training of company security officers;
- Education and training of emergency teams to be engaged in case of pollution;
- Education and training of persons responsible for coordinating search and rescue operations;
- Education and training of inspectors authorized to carry out maritime accident investigations;
- Adjustment of the harbour masters' fleet to the requirements arising from the announcement of the Protected Ecological and Fishery Zone and from the obligation to render assistance within the limits of responsibility of the Croatian Maritime Search and Rescue Coordination Centre

CONCLUSIONS

Lack of ICZM Strategy and MSP in Croatia several problems have been resulted:

- **Limited trust in the institution**: the public does not have full confidence in resource management or results from instruments such as planning and environmental assessments
- **Limited integration between land and sea**: there is limited understanding and consensus on the need for the integration of land and sea areas
- **Inadequate financing**: decision makers do not have a clear understanding of ICZM resulting in a predominant focus on spatial planning to solve the coastal development problems
- **Limited sectoral integration**: national spatial strategy and county spatial plans imply little sectoral integration (the essence of ICZM). According to feedback from the government, the different sectors should have adopted their respective strategies which would have contributed to coordination of sectors in this area
- **Limited vertical integration**: a certain level of vertical integration is achieved on land; vertical integration on the seaside has not been achieved
- **Limited integration of environmental/biodiversity consideration in decision making**
- **Limited technical capacity for ICZM**: no educational or training systems for ICZM have been established
- **Limited public participation**: public participation in ICZM and answers raising programs for ICZM are poorly developed

Several provisions that are not yet covered by legislation in the country so to comply with the ICZM Protocol:

- Adopt a regulation to establish the landscape management plan for the Republic of Croatia
- Prepare the Ballast Water Management Strategy for the Adriatic Sea
- Prepare the Marine Environment Protection Strategy
- Prepare the Act on the Marine and Submarine Areas
- Prepare the Integrated Coastal Management Strategy

The most significant issues of environmental protection and, consequently, sustainable developments of the Adriatic Sea are:

- lack of urban and industrial wastewater treatment systems,
- accidental and operational marine pollution caused by ships and other maritime structures,
- accidents in the transport of oil and oil mixtures,
- the issue of introducing foreign marine micro-organisms and pathogens into the marine environment,
- catching and excessive exploitation of fish resources and very excessive construction in the coastal area. Mariculture production is increasing and continuous monitoring of its impacts on surrounding ecosystems is carried out.

Proposals of solutions for the Protocol implementation:

Analysis of the characteristics and identification of the main burdens and pressures on the sea, its economic and social use, and the degradation of the marine environment are:

- By 2030 ensure adequate waste water collection and treatment in all settlements with more than 10,000 inhabitants.

- By 2030 ensure adequate waste water treatment in all significant industrial installations, including tourist complexes.

- Continue, expand, and improve the programmes for continuous monitoring of physical-chemical-biological parameters of the Adriatic Sea.

- Establish the baseline condition of physical-chemical-biological parameters of the sea in the ports of the Republic of Croatia.

- Exchange information on monitoring the physical-chemical-biological parameters of the sea between ports in the Adriatic.

- In physical planning and development and in planning and using natural resources, provide for conservation of important and characteristic landscape features as well as maintenance of the biological, geological and cultural values which represent a defining part of its importance and beauty.

- Sanction any unacceptable behaviour by enforcing laws and economic instruments and secure the integration of measures to preserve and improve the overall biodiversity in all economic activities that use biological resources.

- Provide economic measures to ensure utilisation of abandoned spatial reserves through revitalisation of derelict urban lands and transformation and remediation of industrial zones with shut-down factories and support better use of urban areas through their internal development.