KLAIPĖDA UNIVERSITY
COASTAL RESEARCH AND PLANNING INSTITUTE

SUPPLEMENT OF THE GENERAL PLAN OF REPUBLIC OF LITHUANIA BY MARINE AREAS

SUMMARY OF STRATEGIC ENVIRONMENTAL ASSESSMENT REPORT

Klaipėda, 2013

INTRODUCTION

Lithuanian General Territorial Plan was prepared and approved by Parliament of Lithuania Republic by the Resolution No. IX-1154 on 29th of October, 2002. Solutions of General plan are in force until 2020. According to the Law of spatial planning (Žin., 2002, Nr. 110-4852) those solutions can be supplemented or corrected during the whole period from 2002 till 2020. In 2011-06-30 Parliament of Lithuania Republic has issued the Resolution No. XI-1571 „Concerning Supplement of the General Plan of Republic of Lithuania by marine areas".

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The strategic environmental assessment of Project Supplementing the General Plan of Republic of Lithuania by marine solutions was carried out.

The objectives of the planning of marine areas:

- to maintain the balance between good ecological status and sustainable economic development of marine areas; set the conditions for spatial cohesion, sustainable development of the country, implementation of consistent policy of spatial functional integration, to solve the complex planning area related tasks;
- to create the healthy and harmonious environment in order to ensure better and evenly applicable to the whole territory of the country conditions;
- to develop common policy for development of infrastructure and also other uses;
- to protect, rationally use and restore natural resources, cherish natural, cultural heritage and recreational assets;
- to create preconditions for marine areas to maintain the ecological balance or to restore it;
- to reserve (establish) marine areas for different level developments of infrastructure and other uses;
- to harmonize the interests of private and legal bodies, general public, as well as on municipal and national level with regards to use of marine areas and conditions for development of different maritime activities, also rights of international parties taking into account exclusive rights of Republic of Lithuania for airspace above its territory, continental shelf and exclusive economic zone in Baltic Sea and ensure implementation of those rights;
- to foster investments into economic development, protection and rehabilitation of assets of nature and cultural heritage and recreational resources.

The area under the planning process consist of Territorial (TW) and adjacent waters, exclusive economic zone (EEZ), including continental shelf of Republic of Lithuania according the Resolution of Government of Lithuanian Republic (Žin., 2004, Nr. 177-6573).

The spatial solutions at marine area supplement the General Plan of Republic of Lithuania. COASTAL zone, including territorial waters of Republic of Lithuania, is distinguished as one of the functional priority areas of the existing General Plan. Recreation, nature conservation and fishery as well as transport are among the prioritised activities in the COASTAL functional zone. Establishment of OPEN SEA functional priority zone, covering the exclusive economic zone and with defined priority for shipping, fishing and development of marine activities, is proposed in order to complete the functional zoning of the General Plan

At the sea, following the similar approach as on the land, the natural framework – base for ecological stability, is being developed. The natural framework is based on properties of marine landscapes, distribution of most valuable sites for biological diversity, sedimentation and hydrodynamic conditions. i.e. elevations, depressions and slopes, nearshore of Curonian spit and mainland coast. Several geomorphological zones are distinguished: Nearshore; Klaipėda-Ventspils and Curonian-Sambian plateaus; Gdansk and Gotland basins and their slopes.

Two alternatives for marine areas development have been proposed (Appendix 1):

Alternative A is based on development of two equivalent East-West directed axes for urban integration through existing Klaipeda metropolitan and through perspective Šventoji-Būtingė development centre - in case of construction of deep port facilities in this area.

Alternative B considers the character of marine area development through currently existing Klaipeda metropolitan, i.e. based on single East-West directed urban integration axis. Economic activities at Būtinge and Šventoji sustain limited possibilities and current level of development, no substantial growth. Klaipėda and Šventoji-Būtingė zones are connected via internal urban integration axis of IC category.

Current environmental state of the marine environment depends on activities carried out at the sea and also on land. The main sea uses currently are: fishing, shipping, activities at port and berths, military exercises, ground dumping and sand extraction for beach nourishment purposes, engineering infrastructure, and recreation. There are established areas of nature protection and also NATURA 2000, identified assets of cultural heritage. Former planning of the marine uses has been made on a sectorial basis and therefore integrated territorial planning has not been introduced.

Morphology of the Lithuanian marine area reflects the general geological structure and former palaeogeographic processes. Big part of the marine area is below 50 m waterdepth, maximum water depth reaches 125m. Specific zone is nearshore up to 20 m waterdepth particularly dynamic and sensitive environment. Bottom of the main geomorphological elements – nearshore, deeps and slopes are covered by modern sediments (sand, silt, mud). Older sediments (till, boulders, clay and other) expose on the elevations and highly erosive parts of the marine area. Hydrological conditions are determined by general conditions in the Baltic Sea. Only nearshore zone often is freshened (from 0,5 to 6,0 ‰) by water discharge from Curonian lagoon. Along with fresh water discharge marine environment is also affected by nutrients accessing from the hinterland.

The most valuable elements of biodiversity are macro algae habitat on the stony bottoms (*Furcellaria lumbricalis*); fish of commercial importance – cod, herring, sprat and flounder; migrating and wintering birds, especially duck (*Clangula hyemalis*) and scoter (*Melanitta fusca*); four species of marine mammals: seals and porpoises.

Eutrophication, similarly as for the whole Baltic Sea, is the main problem in Lithuanian marine areas. The level of the eutrophication is not determined by pollution from Lithuanian sources, but also is influenced by cumulative nutrient loads to the South Eastern Baltics from other countries as well. Main phosphorus and nitrogen sources are agriculture and household waste waters. Currently, marine activities do not contribute significantly to the increase of eutrophication.

Pollution with chemical compounds observed in the Lithuanian waters is result of activities carried out in the water basin itself (marine transport, dredging and dumping of port sediments, other), by inflow from river discharge and from atmosphere. The main pollutants observed at the sea are oil and oil products, heavy metals (f.e. zinc, cadmium), tributil tin compounds, dioxins, furans, phthalates. But the data available is not sufficient to assess the contamination level.

The activities of Klaipeda port do influence the water exchange pattern between Curonian lagoon and the Baltic Sea and also hampers the migrating of the fish. Biodiversity is also negatively affected by intensive fishery at the sea. Intense net fishing reduces the fish stock, therefore results in big mortality of wintering birds. Continuous overuse of biological resources and environmental pollution reduces the biodiversity, weakens the stability and resistance of whole ecosystem. The network of protected and NATURA 2000 areas is expanding in order to preserve natural habitats and wild fauna and flora at the sea.

Significant impact to the environment is caused by shipping. Shipping related risks are: pollution during exploitation, illegal and emergency discharge of oil, wastes and other harmful matter and wastes including ballast waters with possible disease causing water organisms. The negative impact to the Baltic Sea state is also caused by ghost nets left by the fishermen as well as marine litter. As a member of international maritime organization (IMO) Lithuania has adapted the international obligations regarding reduction of the risk caused by shipping.

The most sensitive areas are important for birds and fish habitats. Central part at water depths of 80-100 m is important area for cod and Baltic sprat spawning. Nearshore zone at Curonian spit, Klaipeda port sea gates and Klaipeda city, as well as part from Šventoji to Latvia boarder is densely occupied by small seagulls during the autumn migration. Shallows (up to 5 m waterdepth) between Karklė and Kunigiškiai are important for wintering of silver eider. At the nearshore of Curonian spit red-throated and black-throated divers are wintering. Scoter is the most abundantly wintering sea duck species at the Lithuanian nearshore zone characterized by sandy bottoms and water depths of 35-40 m in front of Curonian spit and stripe between Klaipėda and Palanga. Crested grebes are wintering regularly and abundant at the distance of about 15 km from the main land shore and at less extent – in front of Curonian spit shore. The nearshore zone up to 20 m water depths is most important zone for the biodiversity and stability of ecosystem.

The main problems related to the environmental protection of Baltic Sea that are also considered during the preparation of the supplement of General Plan with marine solutions are: etherification, pollution by toxic compounds and coastal erosion. Sea area affected by eutrophication the most is related to the zone of discharge of Curonian lagoon waters that are 3-5 times more saturated by nutrients. Maximal impact of eutrophication zone is therefore nearshore between Klaipėda sea port entrance gates till Giruliai.

Alien species transported by ships and ballast waters might became invasive, having no natural enemies, therefore may be dangerous for human health and environment and economy. The source of alien species identified in the Lithuanian marine zone (except of mysid *Hemimysis anomala*) is related to earlier

colonized other Baltic Sea areas and was brought to the Lithuanian waters via marine currents and secondary introduction by ships.

The pollution of Lithuanian marine areas is related to: discharge of water from Namunas River basin; activities of Klaiepėda, Šventoji ports and Būtingė oil terminal; dumping of soil dredged at ports; outlet of Palanga waste waters; pollution from ships and by accident. The potential source of pollution is oil extraction which is being carried out in neighbouring Russian waters - „Kravcovskoje“ (D-6) oil platform.

Coastal erosion is one of the most important factors to be evaluated during the planning of marine activities. Degradation of recreational space, threat for the hydrotechnical infrastructure and other developments at the coastal zone are the examples of negative impact. Coastal erosion is induced by natural and artificial forces – hydrotechnical developments near the coast. The most affected coastal stripes are Klaipėda-Giruliai, central part of Planga and Šventoji-Būtingė.

If proposed marine spatial solutions are not implemented, marine activities will still be developed on sectorial base. Chaotic use of marine resources and sporadic location of new marine activities complicates the establishment of blue corridors, preservation and improvement of quality of biodiversity, do not allow to ensure sustainability of nature resources.

Implementation of marine spatial solutions of the General Plan may contribute while solving of or preventing from the environmental protection problems. Optimization of navigation corridors may prevent from accidental crashes and consequently from pollution of marine environment by hazardous substances. Scientific grounding of selection of most suitable areas for new uses at the sea solves part of potential environmental problems as the new economic activities are placed in least environmentally sensitive areas. The development of network of nature protection sites according to the “blue corridor” principles ensures that biological assets are sustained and necessary functional connections are undisturbed, and therefore creates the basis for prevention of environmental problems. Also utilization of renewable energy sources partly contributes to reduction of negative climate change effect. Developing of ports and new marinas allows solving coastal erosion problems in integrated manner.

The demand for the development of Lithuanian marine areas was defined using integrated point of view in order to ensure the sustainable ecological system and optimal economic and social development. The developments and created conditions to increase economic competitiveness at the Lithuanian marine areas allow improving the quality of living for local and also whole Baltic region citizens and also create the background for long term growth of future generation in terms of economy and environmental sustainability.

The priorities are formulated to full fill the obligations of Lithuania to implement EU integrated maritime policy, Marine water framework directive, recommendations of Helcom commission, Lithuanian position regarding EU Strategy for the Baltic sea region, long term development strategy of Lithuania, strategy of regional development; strategy on environmental protection of Lithuania, Baltic sea protection strategy, strategy for long term development of transport system, National strategy on fishery, National strategy on energy, Law and related documents of Republic of Lithuania. “Ecology and environmental protection” and “Safety and security” are the most important among other important planning documents. To ensure good environmental status of Baltic Sea environment is the priority topic on the national level.

The marine spatial solutions proposed in the General Plan foresee to create favourable conditions for current marine uses, expansion of those and fostering the new activities. At the same time, the sustainability of existing marine resources and minimization of negative environmental impact are the most important factors to consider.

General Plan focuses on maintenance of the fishery as a traditional sector, ensuring required infrastructure for commercial and creating attractive conditions for recreational fishery. Also development of aquaculture is foreseen. On the other hand, General Plan does not foresee intensification of the fishing at the sea, but rather improvement of conditions and infrastructure for fishermen and balancing between nearshore and commercial fishing. Implementation of marine solutions of General Plan reserves the most suitable places in the Lithuanian marine areas for fishing. Especially taking into account that new marine uses can limit the fishing in those – most valuable for fishing – areas, therefore it is very important to ensure that in a long run fishermen will not lose the fishing grounds and income. At the same time it is important that the planning of the marine uses is contributing while increasing the fish stock at the Baltic Sea.

Lithuania has two national marine ports established – Klaipeda and Šventoji. Oil cargo is being handled by Būtingė oil terminal of AB „Orlen Lietuva“. The development of Klaipeda ports is foreseen in General plan. The areas dedicated for expansion of current and potential new deep port facilities creates the pre-conditions for future development. And, if environmental and economic grounding is in place the possibility to expand the port at Švetoji-Būtingė area and therefore preserve the strategic status of Lithuania as marine country. Although the ports are being developed in order to satisfy the most important logistic objectives of the country, special solutions with regards to development of Šventoji port and small marinas and berths are defined to meet the social and recreational interests of public and coastal communities. The renovation of coastal shipping and fishing infrastructure allows maintaining connections at the near shore and internal waters of small ships, development of fishery and recreation. Coastal state should take into account the existing recommendations of IMO, type of ships, intensity of navigation and other when defining the navigation routs and traffic separation schemes. The corridors for safety shipping should be mapped in navigation charts and announced as required. The revisions of navigation routs are done according to the existing intensity of shipping and AIS data. The reconstruction of Šventoji port and development of Šventoji- Būtingė area demand for new shipping connection to Klaipėda. Optimization of navigation routs proposed in General plan is necessary because of the strict regulations for other uses and infrastructure development exists in defined corridors. The solutions of General plan would create better conditions for optimization for ships routes to the ports of destination. The optimization of navigation routs has the direct positive impact on shipping and safety.

Two types of engineering infrastructure have been identified in the marine areas of Lithuania – pipes and SPM buoy system in Būtngė oil terminal and underwater cables. Integration into the common European energy and telecommunication systems requires the development of underwater infrastructure. One of the solutions of the Plan is to establish infrastructure corridors in order to connect the offshore renewable energy installations and the electricity grid infrastructure of Lithuanian energy system on land. Certain activities of other sea users are forbidden or limited in the established infrastructure corridors. Therefore to minimize those, Plan recommends using existing underwater cabling lines. Moreover, reserving the space for high voltage NORDBAL underwater link and interconnection of offshore wind energy parks are in line with energy policy o Republic of Lithuania and contributes to ensure the energetic independency.

Dumping and extraction of the soil at the sea is happening already. There is no intention to increase the volumes of those activities during the being planned period, although the number of dumping sites will increase. It is important that new dumping sites help to reduce the physical impact on the ecosystem. Introducing the limit values for the allowed concentrations of hazardous substances in the dumped sediments is the prevention measure set in the LAND 46A-2002 regulations. The minimum impact to the surrounding environment and other activities and especially fishing – is the condition while selecting the areas for new dumping sites.

Different coastal protection solutions are introduced in order to minimize the impact of coastal erosion and ensure high recreational quality of the beaches. Near shore and beach nourishment are the priority measures to be taken in sandy coasts of Lithuania. Clean sand dredged from ports is dumped at the near shore makes positive influence while fighting coastal erosion and improving the state of the adjacent recreational areas. Coastal protection measures are usually applied on shore and at the depths up to 5-8 m. This zone is very dynamic, characterized by intense sediment transport and ecosystem is adapted to constant movement of sand. Existing experience and environmental monitoring of such activities show, that nourishment with sand does not have significant impact to the biodiversity.

Areas of recreation are tightly connected to other sea uses: development of the ports, fishing, coastal protection, etc. Recreation space is being planned in special and master plans of municipalities, but important is to foresee the wider possibilities for recreation and marine tourism in General Plan as those have to be implemented via lower rank of planning documents. Recreation is increasing the technogenic impact on sensitive marine environment and the coastal zone. Proper protection measures have to be foreseen when planning new areas.

Marine solutions of the General plan create the pre-conditions for investigation of the mineral resources at the sea and evaluate the economic effect as well as environmental consequences. Activities related to exploration of mineral resources are regulated according to the Law of earth deeps of Republic of Lithuania. In order to start exploitation of oil and other mineral resources the EIA study is required. The specific activity is sand digging for coastal protection purposes. In this case the resource is not extracted, but relocated to another lithodynamic place keeping it in the same natural system. Accumulation at the

near shore is therefore initiated. Sand digging is there why not considered as exploitation of the mineral resource. Taking into account the possible environmental impact General Plan defines, that exploitation of the mineral resources cannot be executed in the sensitive areas – nearshore zone up to the 20 m isobath.

For the offshore wind energy (OWE) parks development General plan reserves quite vast area in the Lithuanian marine areas. Never the less quite big territorial limitations are set for the installations of OWE. OWE parks including min 500 m safety zones, cannot be established in: protected areas, navigation routes and roadstead of ports, active dumping sites, sand digging areas and other places disturbing the activities of other uses. Suitable places for OWE development should be selected after proper EIA procedures are executed.

General Plan also considers the safety of the activities that are on-going or planned in the dangerous areas. The special attention should be taken on the burial site of chemical weapon as the current state of this place is still unknown. The management of extreme and dangerous situations at the sea is carried out according to the national and local contingency plans for spill of oil and other hazardous substances. Ministry of Defence trough Lithuanian Navy is responsible for the combating the accidence on a national level. There are also local contingency plans at Būtingė oil terminal, Klaipėda sea state port, companies of Klaipėda port that are dealing with cargo of oil and other hazardous substances. There are international Baltic Sea states agreements regarding joint response actions and responsibility in a case of emergency. But the concerns come from D6 oil extraction platform in Russian Federation near waters of Lithuania. As Lithuanian waters borders with Russian federation in the south, republic of Latvia in the north and Kingdom of Sweden in the west, trans boarder environmental impact assessment will be required for spatial solutions of the General Plan that concerns port development, exploration of mineral and energy resources and other activities.

The Plan does not foresee any activities that might have significant impact on Russian Federation. But it is important to mention, that oil extraction executed near the Lithuanian marine border in the case of emergency threatens the marine environment of Lithuania, coastal zone near Curonian spit and the protected areas as well as recreational activities on the spit. The spatial solutions considers the navigation towards the Russian Federation, but proposed optimization of the routes covers currently existing traffic lines, therefore will have no negative consequences. The planned infrastructure corridor could be of benefit for all neighbouring countries.

Developments foreseen in the northern part of Lithuanian marine area can have certain impact for marine areas of Latvia. The most significant impact can be associated with deep port facilities in Šventoji-Būtingė area. New port could stimulate the coastal erosion, potentially increase water and air pollution. Another activity requiring attention – offshore wind energy installations. OWE parks limits other activities and particularly – navigation. But, taking into account that Latvia also considers possibility to develop the OWE in the adjacent areas, it is important to plan the area together and harmonize the navigation routes and jointly develop the energy grid.

The border with Kingdom of Sweden is the shortest. This area will be crossed by electricity link NORDBALT. The cable route is already confirmed by both countries. Important circumstance is chemical weapon buried in the marine area of both countries. Therefore Sweden and Lithuania should strengthen the collaboration and ensure the safety and good environmental status in this part of Baltic Sea.

One of the most important objectives of the marine part of General Plan of Lithuanian is the sustainable development of marine activities. Plan is the horizontal measure allowing controlling the potential conflicts on the very early stage of activities planning. Therefore the potential conflicts can be easier managed and id possible to avoid the negative sequences for socio-economic as well as natural environment. General Plan creates conditions for development of existing activities and also fostering development of new ones. But the in order to start developments proper environmental and policy regulations need to be followed. Considering further the most important prevention measure remains environmental impact assessment and if risk for public health is an issue - the proper health assessment should be executed foreseeing the measures to avoid, reduce and compensate the negative impact in the particular area. The consideration of the EU environmental policies and regulations and directives as well as laws of Lithuania is the main measures in order to avoid the negative impact to the environment. The particular attention should be paid on impact related to shipping, port activities, marine pollution from

ships and other sources. Realization of the solutions of the Plan will have to ensure the strategic objectives of nature protection of the Baltic Sea.

Two alternative concepts – A and B have been proposed in order to define the possibilities of development of marine area. Both have been based on specifics of natural framework and formation of specific territorial structures for future uses.

One of the key aspects of both alternatives is external deep port development and its location. Alternative A is based on the suggestion to create conditions for deep port facilities in Šventoji - Būtingė area. While alternative B is focused on extension of Klaipėda port and development of deep port facilities at Melnragė. This question is very important for strategic development of the country and political decision is needed along with indeed environmental impact assessment and economical evaluation. Currently we can state that development of deep port in any of the suggested places will have significant impact to many environmental components. Therefore it is reasonable to leave both alternatives for deep port development in the future.

The priorities for spatial use in both alternatives A and B foresee exploration and exploitation of marine mineral resources in all marine area of Lithuania, except near shore and marine protected areas. The exploration of marine mineral resources is not implemented, therefore the specific, most suitable or reserved areas cannot be defined at this stage. The exploitation of the mineral resources is possible after suitable places are grounded by geological investigations and environmental impact properly assessed.

Both alternatives defines that central part of Lithuanian marine area in exclusive economic zone and adjacent area is prioritized for commercial fishery and shipping purposes. This area is also reserved for unpredicted national demands and prioritized for unknown future marine activities.

In the alternative A the conservation priority is given to the southern, adjacent to the Curonian spit part of the marine area. Whole Curonian spit and the nearshore is considered as of most valuable part of Lithuanian landscape and geoecological watershed of international importance. Here are concentrated main nature protection and NATURA 2000 areas, and also new Baltic Sea biosphere polygon is being created. Prioritization of nature protection in southern area and also possibilities to expand the network of protected areas on the Curonian – Sambian plateau should ensure the continuity of habitats of terrestrial and marine protected assets. At the same time in the alternative A the priority for developments and renewable energy is given to the northern part, on the Klaipėda-Ventspils plateau and on the Klaipėda bank.

The whole nearshore is prioritized for recreation, fishery and development of the port infrastructure, according to the regulations set in the law of Coastal stripe.

After analysis of proposed solutions and their alternatives, it is suggested to formulate common spatial concept (Appendix 2) of development which is based on alternative A but maintaining some of the solutions mentioned in the alternative B.

The special program should be prepared in order to establish proper monitoring of implementation of General Plan of Lithuanian marine areas. The program should integrate indicators of environmental monitoring of the Baltic Sea; descriptors of good environmental status and recommended by EU ICZM indicators.