

Studies to support the development of sea basin cooperation in the Mediterranean, Adriatic and Ionian, and Black Sea



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0. General overview

Morphological structure of the coastline

- Romania's coastline¹ is 256 km² long, representing 0,19% of the total coastline of EU-22 coastal Member States. The coastline is entirely on the Black Sea, stretching from the Musura Gulf (at the Ukrainian border) to VamaVeche (at the Bulgarian border). The country's coastal zone (within a range of 10 km from the coast) covers³ 2.323 km², which amounts to 0,56% of the corresponding EU-22 Member States coastal area.
- Romania has one coastal NUTS-2 region, "Sud-Est", and two coastal NUTS-3 regions, Constanța and Tulcea.

Population and related social condition for maritime areas

- As of 2012, 968.082 inhabitants live in the country's NUTS-3 coastal regions, representing 4,53% of the country's total population.
- In 2010, the coastal NUTS-2 region employed 1,1 million people, amounting to a share of 12,45% of the total employment in Romania and 0,54% of the labour force employed in all EU-22 coastal Member States.
- In 2010, total unemployment in the population aged 20–64 years in Romania's NUTS-2 coastal regions was 102.700 people, representing 14,96% of the national unemployment and 0,51% of the total unemployment in all EU-22 coastal Member States. As of 2012, 117.500 were unemployed in Romania's coastal region, amounting to a 17,78% share of the national unemployment.

Economic role of maritime areas over the national total

- In 2010, the gross domestic product (GDP) per capita in Romania's two coastal regions, Constanța and Tulcea, was EUR 6.277. The GDP of both regions was 108,35%, compared with the national GDP per capita of EUR 5.793.
- Romania's NUTS-3 coastal regions were responsible for EUR 5,41 billion of gross value added (GVA), which is 4,89% of the nation's EUR 110,73 billion GVA.
- Romania's NUTS-3 coastal regions were responsible for employing 468.200 people, which is 5,11% of the national total employment.

NACE Sector	GVA (billion EUR)		Employment (in 1000 persons)	
	Coastal areas	% on Country total	Coastal areas	% on Country total
Agriculture, Aquaculture and Fishing (A)	0,35	4,94%	138,4	4,78%
Manufacturing (C)	1,12	4,15%	71,4	4,46%
Construction (F)	0,79	6,95%	42,0	5,99%
Wholesale and retail trade; transport; accommodation and food service activities; information and communication (G-J)	0,87	4,19%	114,4	6,22%
Total (all NACE)	5,41	4,89%	468,2	5,11%

Source: EUROSTAT

¹http://www.geoecomar.ro/website/publicatii/Nr.17-2011/03_stanchev_BT.pdf

²http://ec.europa.eu/maritimeaffairs/documentation/studies/documents/romania_climate_change_en.pdf;

³ http://www.eea.europa.eu/publications/eea_report_2006_6

1. Marine and maritime activities

Table 1 - Indicators of relevant marine and maritime activities in Romania

Function/activity	GVA (EUR, billion)	Employment (*1000)	Number of enterprises	Further indicators	Source & Reference year	
0. Other sectors						
0.1	Shipbuilding and ship repair	0,36	23,60	515	----	EUROSTAT (2010)
0.2	Water projects	0,168	11,87	196	----	EUROSTAT (2010)
1. Maritime transport						
1.1	Deep-sea shipping	0,015	0,82	75,45	<i>34.6% of goods transported by this modality in 2010</i>	EUROSTAT (2010)
1.2	Short-sea shipping (incl. Ro-Ro)	0,028	1,57	143,89	<i>65.6% of goods transported by this modality in 2010</i>	EUROSTAT (2010)
1.3	Passenger ferry services	0,00	0,00	0,00	----	EUROSTAT (2010)
1.4	Inland waterway transport	0,144	6,39	210,82	----	EUROSTAT (2010)
2. Food, nutrition, health and eco-system services						
2.1	Fishing for human consumption	0,088	6,44	619	----	Prodcom (2010); EUROSTAT (2010); The 2012 Annual Economic Report on the EU Fishing Fleet (STECF-12-10), Joint Research Centre
2.2	Fishing for animal feeding	0	0	0	----	Prodcom (2010); EUROSTAT (2010); The 2012 Annual Economic Report on the EU Fishing Fleet (STECF-12-10), Joint Research Centre
2.3	Marine aquaculture	0	0	0	----	Joint Research Centre, Approach towards European Aquaculture Performance indicators (2010)
2.4	Blue biotechnology	0	0	0	----	Experts knowledge (private stakeholder)
2.5	Agriculture on saline soils	0,1936	159,42	n/a	----	EUROSTAT (2010) The Saline and Sodic Soils Map, Joint Research Centre
3. Energy and raw materials						
3.1	Offshore oil and gas	0,088	37,81	137	----	EWEA 2012: http://www.ewea.org/fileadmin/files/library/publications/statistics/Wind_in_power_annual_statistics_2012.pdf
3.2	Offshore wind	0	0	0	----	European Wind Energy Association (2013)
3.3	Ocean renewable energy	0	0	0	----	Experts knowledge (private stakeholder)
3.4	Carbon capture and storage	0	0	0	----	http://www.getica-ccs.ro/files/CCS_Roadmap-for-Romania.pdf
3.5	Aggregates mining (sand, gravel, etc.)	0	0	0	----	European Aggregates Association (2008, 2009, 2010)
3.6	Marine minerals mining	0	0	0	----	www.namr.ro (National Agency for Mineral Resources)
3.7	Securing fresh water supply (desalination)	0	0	0	----	Experts knowledge (private stakeholder)
4. Leisure, working and living						
4.1	Coastal tourism	0,40	47,51	4.974	----	EUROSTAT (2010)
4.2	Yachting and marinas	0,0017	0,22	39	----	EUROSTAT (2010)
4.3	Cruise tourism	0	0	0	----	EUROSTAT (2010)
5. Coastal protection						
5.1	Protection against flooding and erosion	0,041	0,433	n/a	----	www.rowater.ro (2013)
5.2	Preventing saltwater intrusion	n/a	n/a	n/a	----	Experts knowledge (private stakeholder)
5.3	Protection of habitats	n/a	n/a	n/a	463,43 million EUR was the general government environmental protection expenditure in 2010 out of which 59,7 million EUR were allocated in South East region	EUROSTAT (2010)
6. Maritime monitoring and surveillance						
6.1	Traceability and security	n/a	n/a	n/a	----	Experts knowledge (regional official)

Function/activity		GVA (EUR, billion)	Employment (*1000)	Number of enterprises	Further indicators	Source &Reference year
	of goods supply chains					
6.2	Prevent and protect against illegal movement of people and goods	0,082	0,825	n/a	----	www.politiadefrontiera.ro/ - Border Police
6.3	Environmental monitoring	0,061	0,615	n/a	----	EUROSTAT (2011), http://www.gnm.ro (National EnvironmentalGuard)

Maritime % used for estimating the share of:

- 52.24 Cargo handling – 3,04%
- 52.10 Warehousing and storage – 3,04%

Table 2 - Overview of relevant marine and maritime activities in Romania

Function/activity		Activity overview	Socio-economic indicators	Source & Reference year
0. Other sectors				
0.1	Shipbuilding and ship repair	Shipbuilding activity plays an important role in Romania with two major shipyards in Constanța and Mangalia on the Black Seacoast and four other important shipyards located on the Danube (Sulina, Tulcea, Galați, Brăila). Starting from Brăila, the Danube becomes a maritime area. There are also other important shipyards located along the Danube in Oltenita, Giurgiu, Drobeta, and Orsova. Although affected by the economic crisis, the maritime shipyards are still developing.	Although the number of persons employed decreased in recent years from 33.326 in 2008 to 23.381 in 2010, as did the number of corresponding enterprises, there is a 35% increase in the number of enterprises dealing with shipbuilding. The importance of ship repair has decreased constantly in recent years (GVA in 2010 was 59% of that in 2008), but shipbuilding increased by 20%, in GVA terms 2010/2008.	EUROSTAT (2010)
0.2	Water projects	The water projects are linked mainly with the rehabilitation of the navigation canals on the Danube and Danube Delta and also with the improvement of ship access to maritime ports. Basic work includes modernising and extending the number of docks (on maritime ports and on Danube ports) and dredging activities. There is also a plan to develop three fishing ports in Sulina, Midia, and Mangalia. There are also investments in developing Constanța South port and in modernising and increasing capacity in Midia offshore port for supplying oil to the refinery and for increasing transit capacity of the docks, and also for a new LPG (liquefied petroleum gas) import–export terminal. Although affected by the economic crisis, the water projects are important to the development of inland waterway transport, for shipbuilding and short or deep-sea shipping.	In 2010, owing to the economic crisis, the added value of the water projects decreased 24%, compared with 2008, to EUR 168,1 million. The number of enterprises increased to 196 in 2010 vs. 173 in 2008, with fewer persons (11.874) employed in 2010 vs. 14.597 in 2008.	EUROSTAT (2010)
1. Maritime transport				
1.1	Deep-sea shipping	The main ports for cargo traffic in the coastal area are in Constanța (part of the TEN-T network), Sulina, and Mangalia.	Deep-sea shipping was affected by the economic crisis. The relevance of deep-sea shipping in the context of maritime transport decreased from a 18,8% share in the maritime transport GVA in 2008 to 7,8% in 2010. Employment in this activity has decreased constantly, despite a 42% increase in the number of enterprises in 2010, compared with 2008.	EUROSTAT (2010)
1.2	Short-sea shipping (incl. Ro-Ro)	The two satellite ports of Constanța are Midia, located 25 km north of the Constanța complex, and Mangalia, 38 km to the south. Both perform a vital function in the overall plan to increase the efficiency of the main port's facilities. Both are upgraded regularly to meet the growing demands of cargo owners. In 2008, the traffic achieved by the two satellite ports was 4% of the general traffic, 96% being achieved by the Port of Constanța. The total storage area is 71.000 m ² , allowing the accommodation of 5.400 vehicles. The length of the terminal berth is 200 m and is specialised for activities such as reception, inspection, storage, loading, and unloading. The terminal has both road and rail connections equipped with a double and a single berth railway. The terminal handles transit cargo for the Ukraine and Russia and other destinations in Europe and the Mediterranean: France, Spain, Greece, Turkey, Algeria, Morocco, and Italy. The importance of short-sea shipping is mainly the result of the Midia port facilities for crude oil refining, gas stocking capacity, and the oil pipeline from Constanța to Ploiesti (the most important refining area in Romania). The recent discovery of new gas fields in the Black Sea will strengthen the role of this MEA, increasing employment possibilities in all segments of the value chain.	Short-sea shipping remains constant at ca. 15% of the maritime GVA in the years 2008 to 2010. The number of enterprises and of employees in this sector is increasing constantly, increasing by 320% in 2010 compared with 2008.	EUROSTAT (2010)

Function/activity		Activity overview	Socio-economic indicators	Source & Reference year
1.3	Passenger ferry services	The new passenger terminal is located to the north of the Port of Constanța, on the North Breakwater at the passengers berth. As a destination for many Danube and maritime cruise routes, the Port of Constanța offers the best conditions for berthing of both river and maritime cruise vessels, facilitated by the existing depths at the new terminal. The existing mooring length is 293 m and the quay depth is 13,5 m, ensuring the mooring of large vessels, with drafts up to 10–11 m. Located near the historical area of Constanța city and the Tomis touristic port, the new passenger terminal has an operational capacity of 100.000 passengers per year and is the most recent investment to increase the activity on the Romanian seaside.	The passenger ferry service just started in 2010/2011 and has no socio-economic significance yet.	http://www.portofconstan-tza.com
1.4	Inland waterway transport	Inland waterway transport is favoured by two major waterways from the Black Sea to the Danube: the Danube Delta Canal and Black Sea; the Danube Canal starts at Agigea and connects the Black Sea with Central Europe. The Danube Canal is the third largest in the world after Panama and Suez canals. The Danube and its canal to the Black Sea is one of the most important and cheapest transport modes for the landlocked countries of the Danube basin. The activity on the Danube and on the Constanța riverside port increased significantly in the past years but is still under capacity. The density of the inland waterway transport is 6,5km/1000 km ² , and it is composed of a 1.779-km network: 1.075 km international Danube waterway, 524 km Danube Delta waterways, and 91 km artificial canal (Danube–Black Sea and Poarta Albă–Năvodări). The inland waterway network has 26 inland ports and 6 river-maritime ports. There is also an ongoing plan to extend the channel from Danube to Bucharest.	Over the period 2008–2010, GVA increased 3%, despite the fact that the number of enterprises in 2010 was 69,15% of 2008, and the number of persons employed was 95,43%. The total inland waterway traffic was 31,481 million tonnes compared with 21,390 million tonnes in 2009.	www.mt.ro www.acn.ro EUROSTAT (2010)
2. Food, nutrition, health and eco-system services				
2.1	Fishing for human consumption	Fishing for human consumption takes place mainly in the Danube Delta, Black Sea, the Danube, and some lakes. The Black Sea capture was 537,2 tonnes in 2011, and the Danube Delta capture was 2.256 tonnes in the same year (83.03% of the total inland capture fisheries). The share of fishing activities in the fisheries (including aquaculture) activity in Romania was 24,09% in 2011 (volume). The size of the fleet has increased between 2008 and 2010. In 2013, 197 fishing vessels are operating in the Black Sea (one over 24 m, one over 18 m, and others less than 18 m). In the Danube Delta, there are 1.447 fishing boats (787 less than 6 m and 659 between 6 and 12 m). In 2008, 76 fish processing units were registered, but owing to the economic crisis, only 42 were active in 2010. According to the National Agency for Fishing and Aquaculture (2013), the production of processed fish was 5.859 t in 2008, dropped to 3.637 t in 2009, but recovered quite well in the next years (6.500 t in 2010, 7.500 t in 2011, and 11.845 t in 2012). GVA for processed fish was EUR 15,7 million in 2008, EUR 14,74 million in 2009, and EUR 13,91 million in 2010. Most processing plants are not located in the coastal area and use frozen fish, mainly pelagic species from the Atlantic and North seas as raw material. The basic capture of the Black Sea is sprat, which is salted directly by the fishermen and sold throughout the country. The quantity of freshwater species, such as cyprinids, pike, and pike perch, which are processed, is not yet substantial, and the processing activity remains on a small scale owing to weak infrastructure (specialised ports, road access, utilities, and weak fishermen organisations) as well as low production levels. The success of processed freshwater species (carps, wels, etc.), sold as gutted and smoked or as smoked fillets created a new market for these products and was accompanied by appropriate certified labelling as traditional products.	Economic performance indicators revealed a decline in 2009 and 2010, compared with 2008, in terms of gross value added and an increase in energy costs. In 2011, landings increased by ca. 200%, mainly the result of an increase in the number of vessels registered and new targeted species such as Thomas' rapa whelk. The share of fish processing accounts for 98,3% of the total fishery sector GVA and 75,8% of the total persons employed in the sector.	www.ampeste.ro www.anpa.ro Prodcom (2010) The 2012 Annual Economic Report on the EU Fishing Fleet (STECF-12-10), Joint Research Centre National Statistics Institute (2013)

Function/activity		Activity overview	Socio-economic indicators	Source & Reference year
2.2	Fishing for animal feeding	There is neither capture nor processing of fish for animal feed in Romania. The level of non-commercial fish stocks does not justify their use as animal feed.	----	Experts knowledge (private stakeholder)
2.3	Marine aquaculture	There is no consistent activity. There is only one offshore mussel farm and one onshore turbot farm. The mussel farm produces 20 t/year and had a turnover of EUR 15.000 in 2012.	This activity has a very limited impact on the socio-economic indicators. However, it has to be taken into account that the turbot farm is a new investment designed for a production of 150 t/year. First market size production is expected in 2014. These recent activities could help further develop this area in the long term, producing additional incomes and diversifying species farmed (at present around 80% of production is cyprinid).	Experts knowledge (private stakeholder)
2.4	Blue biotechnology	n.a.	----	Experts knowledge (private stakeholder)
2.5	Agriculture on saline soils	In Romania, 47,71% of the agriculture is made on saline soils. Most of these saline soils, however, are in the Danube Delta, where agriculture does not have an important role in land cultivation. The main products are sunflower and grapes, Constanța being the main producer. There is a degree of further processing of sunflower oil, mills, wine, etc.	This activity has a very limited impact on the socio-economic indicators.	EUROSTAT (2010) The Saline and Sodic Soils Map, Joint Research Centre
3. Energy and raw materials				
3.1	Offshore oil and gas	Offshore oil and gas remains one of the most important activities because new stocks (mainly gas) were found recently in the Romanian section of the Black Sea. Gas production remained relatively constant in the reference period, and oil extraction decreased constantly; imported quantities also decreased, indicating a decline in consumption. Gas and oil activities are very important issues for energy independence. Because Romania has a substantial degree of energy independence compared with Central European countries, and this could allow the construction of a pipeline connection from the Black Sea to an Austrian gas terminal. Recent announcements by OMV regarding the "huge oil and gas" deposit found in the Black Sea and the large number of exploration licenses issued by the National Agency for mineral resources in various Black Sea perimeters indicates that offshore oil and gas will generate further development of the coastal area.	The offshore oil and gas sector is the third largest employer in the coastal economy owing to oil and gas exploitation activity in the Black Sea and to the Midia gas and oil port and refinery. Employment increased 50% in the reference period (including associated services).	http://www.namr.ro/ http://www.naturalgaseur.ro/ EUROSTAT (2011)
3.2	Offshore wind	The most important renewable energy sources in the coastal area are solar, wind, and biomass energy. Another important potential activity is offshore wind farming, based on the significant increase in inland wind farms. Romania's increase in wind farms has been the most rapid in the EU, and the contribution of wind energy in total produced energy is now equal to the European average. The first project for an offshore wind farm (100 turbines and 500 MW) has already been announced on the market. This MEA involves consistent research and innovation activities, mainly supported by major equipment and technology producers. Compared with onshore wind farms, competitiveness is in some respects lower because of higher installation costs, but availability of space is not as yet an issue. Because Romania has already nearly reached the final 2020 targets for renewable energy shares and because the updating of the Energy National Strategy has been recently postponed owing to a shortage of financing, it is unlikely that growth will continue as it has in recent years, despite existing potential. Recently, the government partially postponed the allocation of Green Certificates until 2017.	There is no plan of action for offshore wind power installation for Romania, only onshore, but one permission has been granted for a 500 MW offshore wind farm, and one is in the strategy development phase.	http://www.ewea.org/fileadmin/files/library/publications/statistics/Wind_in_power_annual_statistics_2012.pdf
3.3	Ocean renewable energy	There are no conditions for using this type of energy owing to the morphological characteristics of the Black Sea.	There is no socio-economic impact of this activity.	Experts knowledge (private stakeholder)

Function/activity		Activity overview	Socio-economic indicators	Source & Reference year
3.4	Carbon capture and storage	Carbon capture and storage is at an incipient phase, and the studies made for this have a small connection with the coastal area.	There is no socio-economic impact of this activity.	http://www.getica-ccs.ro/files/CCS_Roadmap-for-Romania.pdf
3.5	Aggregates mining (sand, gravel, etc.)	The main aggregate exploited in the coastal area is limestone. However, marine aggregate mining does not exist in Romania.	There is no socio-economic impact of this activity.	European Aggregates Association (2010) EUROSTAT (2010)
3.6	Marine minerals mining	There is no such activity in Romania.	There is no socio-economic impact of this activity.	www.namr.ro (National Agency for Mineral Resources)
3.7	Securing fresh water supply (desalination)	There is no such activity (desalination) in Romania; the water supply is mainly ground or surface water. Romania has enough freshwater resources (surface or underground) and has not developed desalination.	There is no socio-economic impact of this activity.	Ministry of Environment
4. Leisure, working and living				
4.1	Coastal tourism	Coastal tourism is the second largest contributor of GVA in the coastal area, even if the activity is seasonal. Coastal tourism is one of the most important MEAs in terms of employment because of the diversity of touristic activities in the Danube Delta and on the Black Sea shore. Many types of tourism are exploited on the Black Sea shore, on the Danube Delta, and on the littoral lakes, including regular summer tourism, weekend tourism, fishing/hunting/bird-watching tourism, therapeutic tourism, scientific tourism, and rural tourism.	Employment decreased by 10.411 in 2010 from 12.093 in 2008. In 2010, 1.090 enterprises were involved in this activity.	EUROSTAT (2010)
4.2	Yachting and marinas	Because of its favourable location and infrastructure, Tomis marina has great potential for nautical tourism, sporting activities, and entertainment, offering a shelter for sport sailboats. The port's capacity allows the arrangement of sporting activities such as boat races. This type of activity also exists in Mangalia's touristic port and St Gheorghe marina.	The activity has a very small impact on coastal economic and social life by virtue of the small number of enterprises involved, only 39 in 2010 with 222 employees.	EUROSTAT (2010)
4.3	Cruise tourism	n.a.	----	Experts knowledge (private stakeholder)
5. Coastal protection				
5.1	Protection against flooding and erosion	Marine coastal erosion is intensive on the southern part of the NUTS2 coast. Programmes for consolidating the embankments exist and are usually carried out by the National Administration of Romanian Waters.	In 2008, the total amount of public expenditures for coastal protection was close to EUR 41 million. This amount covers mainly the implementation of the master plan for the southern coastal unit in Romania. In the period 1998–2015, expenditures will total EUR 312 million. In the Danube Delta Master Plan, it is foreseen that ca. EUR 45 million will be used in the period 2006–2015 to protect the villages around the delta against flooding.	http://ec.europa.eu/maritimeaffairs/documentation/studies/documents/romania_climate_change_en.pdf
5.2	Preventing salt water intrusion	n.a.	----	Expert knowledge (private stakeholder)
5.3	Protection of habitats	The whole coastline is under NATURA 2000 special protection, except for the shore of Constanța, where different economic activities take place. The protected marine area is 1.353 km ² . The most important habitat is the Danube Delta Biosphere Reserve, which has its own administration. For the other series of sites under the Birds or Habitat Directives, there is an ongoing process of attributing the custody to a series of research institutes or NGOs. Vama Veche–2 Mai is another important marine protected area managed by the National Institute for Marine Research and Development "GrigoreAntipa" in Constanța.	The Danube Delta Master Plan will allocate EUR 45 million to restoring the functions of the natural ecosystems and habitats in the Delta in the period 2006–2015.	www.insse.ro (National Institute of Statistics) http://ec.europa.eu/maritimeaffairs/documentation/studies/documents/romania_climate_change_en.pdf
6. Maritime monitoring and surveillance				

Function/activity		Activity overview	Socio-economic indicators	Source & Reference year
6.1	Traceability and security of goods supply chains	Traceability and security of the goods supply chain is monitored by the national company Maritime Ports Administration SA, Constanța (MPA) and the Romanian Naval Authority (RNA), both of which are subordinate to the Ministry of Transport and Infrastructure, which oversees shipping security on sea, or the Danube and Romanian Border Police/Transport Police Department of Constanța, both of which are subordinate to the Ministry of Internal Affairs. There are also governmental agencies organised at national and county levels in charge of phytosanitary, veterinary, environmental, and food-safety control.	----	http://www.portofconstanța.com
6.2	Prevent and protect against illegal movement of people and goods	Two institutions are involved in this activity: the National Customs Authority, which oversees compliance of import and export rules for goods, and the Romanian Border Police through the Coast Guard, which is in charge of marine surveillance of the coastal border. The National Customs Authority has eight regional Customs Directions and 88 offices throughout the country, with competences in customs declarations for imported and exported goods.	The National Customs Authority had 3.159 employees in 2011 and a EUR 14.033.555 budget in 2012. The Coast Guard's 2013 budget for the NUTS 2 coastal region is estimated at EUR 9.036.160 and an undisclosed number of employees.	http://www.customs.ro/en.aspx www.politiadefrontiera.ro / - Border Police
6.3	Environmental monitoring	Environmental monitoring is performed by various institutions such as the National Administration "Apele Române", which oversees water management and monitoring, organised in eight Water Basin Districts; the Environmental Agency, organised in 41 local environmental agencies dealing with environmental authorisations and agreements for plans, projects and activities, and with environmental-quality monitoring. The National Environmental Guard, organised at national and county levels, verifies economic activities for environmental-legislation compliance. The National Institute for Marine Research and Development (NIMRD) "Grigore Antipa" in Constanța and the Danube Delta Research and Development Institute are also involved in environmental monitoring together with Non-Governmental Organisations specialised in environment such as Romanian Ornithological Society or "Save Danube and Delta" Association. The public institutions involved are under the Ministry of Environment, depending on the part of the environment for which they are responsible. There are also legal obligations for the companies to perform regular self-monitoring, especially where a potential hazard could affect the environment. Non-public environmental monitoring is also carried out by several non-governmental institutions.	Public expenditure for environmental protection was 0,81% of national GDP in 2010. Environmental monitoring is carried out mainly by the Ministry of Environment, with a total 2013 budget of EUR 490,87 million, out of which EUR 317,47 million is for environmental protection. Compliance with environmental legislation is checked by the National Environmental Guard (953 employees and a 2013 budget of EUR 8,83 million). Expenditure for national governmental environmental protection was EUR 1,23 billion in 2011 and, in the same period, expenditure by the business sector was EUR 1,13 billion.	EUROSTAT (2011) www.politiadefrontiera.ro / - Border Police

2. Breakdown of marine and maritime activities at regional level (NUTS-2) and selection of most relevant regions

Because Romania has only one coastal NUTS 2 region, Sud-Est, the national maritime activities and the NUTS-2-level analysis contain largely the same data. However, different proxies are used for the activities which take place also outside the NUTS 2 region (for details, see the comments in the last column of (Table 3)).

Table 3 - Indicators of relevant marine and maritime activities in Sud-Est

Function/activity		GVA (EUR, billion)	Employment (*1000)	Number of enterprises	Further indicators	Source & Reference year
0. Other sectors						
0.1	Shipbuilding and ship repair	0,18	11,80	258	----	EUROSTAT (2010) A proxy used: 50% of the total national (based on the location of shipyards)
0.2	Water projects	0,084	0,593	10	----	EUROSTAT (2010) A proxy used: 50% of the total national (based on the location of companies-service providers)
1. Maritime transport						
1.1	Deep-sea shipping	0,015	0,82	75,45	34,6% of goods transported by this modality in 2010	EUROSTAT (2010)
1.2	Short-sea shipping (incl. Ro-Ro)	0,028	1,570	143,89	65,4% of goods transported by this modality in 2010	EUROSTAT (2010)
1.3	Passenger ferry services	0,00	0,00	0,00	----	EUROSTAT (2010)
1.4	Inland waterway transport	0,122	5,43	179,19	----	EUROSTAT (2010) A proxy used: 50% of the total national (based on the location of companies-service providers)
2. Food, nutrition, health and eco-system services						
2.1	Fishing for human consumption	0,009	640	62	----	Prodcom (2010); EUROSTAT (2010); The 2012 Annual Economic Report on the EU Fishing Fleet (STECF-12-10), Joint Research Centre A proxy used: 10% of the total national (based on the location of companies)
2.2	Fishing for animal feeding	0	0	0	----	Prodcom (2010); EUROSTAT (2010); The 2012 Annual Economic Report on the EU Fishing Fleet (STECF-12-10), Joint Research Centre
2.3	Marine aquaculture	0	0	0	----	Joint Research Centre, Approach towards European Aquaculture Performance indicators (2010)
2.4	Blue biotechnology	0	0	0	----	Experts knowledge (private stakeholder)
2.5	Agriculture on saline soils	0,096	79,7	n.a.	----	EUROSTAT (2010) The Saline and Sodic Soils Map, Joint Research Centre A proxy used: 50% of the total national (based on the location of agriculture activities)
3. Energy and raw materials						
3.1	Offshore oil and gas	0,088	37,81	137	----	EWEA 2012: http://www.ewea.org/fileadmin/files/library/publications/statistics/Wind_in_power_annual_statistics_2012.pdf
3.2	Offshore wind	0	0	0	----	European Wind Energy Association (2013)
3.3	Ocean renewable energy	0	0	0	----	Experts knowledge
3.4	Carbon capture and storage	0	0	0	----	http://www.getica-ccs.ro/files/CCS_Roadmap-for-Romania.pdf

Function/activity		GVA (EUR, billion)	Employment (*1000)	Number of enterprises	Further indicators	Source & Reference year
3.5	Aggregates mining (sand, gravel, etc.)	0	0	0	----	European Aggregates Association (2008, 2009, 2010)
3.6	Marine minerals mining	0	0	0	----	www.namr.ro (National Agency for Mineral Resources) 2013
3.7	Securing fresh water supply (desalination)	0	0	0	----	Experts knowledge (private stakeholder)
4. Leisure, working and living						
4.1	Coastal tourism	0,40	47,51	4.974	----	EUROSTAT (2010)
4.2	Yachting and marinas	0,0017	0,22	39	----	EUROSTAT (2010)
4.3	Cruise tourism	0	0	0	----	EUROSTAT (2010)
5. Coastal protection						
5.1	Protection against flooding and erosion	0,001	0,021	n.a.	----	www.rowater.ro (2013) A proxy used: 50% of the total national (based on the locations where protection measures take place)
5.2	Preventing salt water intrusion	n.a.	n.a.	n.a.	----	Experts knowledge (private stakeholder)
5.3	Protection of habitats	n.a.	n.a.	n.a.	463,43 million EUR was the general government environmental protection expenditure in 2010 out of which 59,7 million EUR were allocated in South East region	EUROSTAT (2010)
6. Maritime monitoring and surveillance						
6.1	Traceability and security of goods supply chains	n.a.	n.a.	n.a.	----	Experts knowledge (regional official)
6.2	Prevent and protect against illegal movement of people and goods	0,008	0,082	n.a.	----	www.politiadefrontiera.ro/ - Border Police A proxy used: 50% of the total national (based on the locations where protection measures take place)
6.3	Environmental monitoring	0,006	0,061	n.a.	----	EUROSTAT (2011) http://www.gnm.ro (National EnvironmentalGuard) A proxy used: 50% of the total national (based on the locations where protection measures take place)

Table 4 - Overview of relevant marine and maritime activities in Sud-Est

Function/activity		Activity overview	Socio-economic indicators	Source & Reference year
0. Other sectors				
0.1	Shipbuilding and ship repair	In Romania shipbuilding plays an important role, mainly in the NUTS 2 coastal region, with two major shipyards in Constanța and Mangalia on the Black Sea coast, with four other important shipyards located on the Danube (Sulina, Tulcea, Galați, Brăila).	Shipbuilding and ship repair, traditional activities on the Danube and on the Black Sea, contribute substantially in terms of GVA owing to a series of upgraded private shipyards along the maritime Danube, Danube Delta, and Black Sea shore.	EUROSTAT (2010)
0.2	Water projects	There is also a plan to develop three fishing ports for Black Sea fishing vessels in Sulina, Midia, and Mangalia (all located in the NUTS 2 area). There are also investments in developing Constanța South port and in modernising and increasing capacity in Midia offshore port for supplying oil to the refinery and for increasing transit capacity of the docks, and also for a new LPG (liquefied petroleum gas) import–export terminal.	See indicators provided at national level (Table 2).	EUROSTAT (2010) World Bank report ⁴ (2011)
1. Maritime transport				
1.1	Deep-sea shipping	The main ports for cargo traffic are located in the NUTS 2 coastal area in Constanța (part of the TEN-T network), Sulina, and Mangalia.	Deep-sea shipping was largely affected by the European and national economic crisis. In the period 2008–2010, deep-sea shipping activity decreased to 36% of the GVA of 2008 in the context of the general economic crisis. There is also a constant decrease in employment in this sector despite a 42% increase in the number of enterprises in 2010, compared with 2008.	EUROSTAT (2010)
1.2	Short-sea shipping (incl. Ro-Ro)	Short-sea shipping is one of the most important activities of the NUTS 2 coastal region, and it stands constant at ca. 15% of maritime GVA in 2008–2010. In this NUTS 2 region, the two satellite ports of Constanța are Midia, located 25 km north of the Constanța complex, and Mangalia, 38 km to the south. The importance of short-sea shipping is the result of the facilities of Midia port for crude oil refining, gas stocking capacities, and an oil pipeline from Constanța to Ploiesti, the most important refining area in Romania. The recent discovery of new gas fields in the Black Sea will strengthen the role of this activity and increase the possibilities for employment in coastal regions.	The number of enterprises and employees in the NUTS 2 coastal area for this sector is increasing constantly and increased 320% in 2010, compared with 2008.	EUROSTAT (2010)
1.3	Passenger ferry services	The Port of Constanța, including the new passenger terminal located in the north of the Port of Constanța, offers the best conditions for berthing both river and maritime cruise vessels, facilitated by the existing depths at the new terminal.	This activity has no socio-economic significance yet.	http://www.portofconstanza.com
1.4	Inland waterway transport	The inland waterway transport has its engine in the NUTS 2 coastal area being favoured by two major waterways from the Black Sea to the Danube: the Danube Delta Canal and the Black Sea–Danube Canal, starting at Agigea connecting the Black Sea with Central Europe. There is also an ongoing plan to continue the channel from the Danube to Bucharest, increasing value to the inland waterway transport. The importance of inland waterway transport will increase in the next years, because this is one of the cheapest ways to transport goods.	In the period 2008–2010, GVA increased 3%, despite the fact that the number of enterprises in 2010 was 69,15% of 2008, and the number of persons employed was 95,43%. In 2010, inland waterway traffic through the canals was reported at 12.358.349 t, and in 2012, it reached 13.722.161t, which is closer to the volumes registered before the economic crisis. For volumes transported by maritime Danube in 2010, there were 5.905 ships transporting 11.718 thousand tonnes; in 2011, there were 5.788 ships transporting 10.548 thousand tonnes; in 2012, there were 4.497 ships transporting 8.381 thousand tonnes. Sulina was the only port that registered constant activity.	www.mt.ro www.acn.ro EUROSTAT (2010)
2. Food, nutrition, health and eco-system services				

⁴<https://openknowledge.worldbank.org/bitstream/handle/10986/16036/746350RO0ESW0P000PUBLIC00Box377382B.pdf?sequence=1>

Function/activity		Activity overview	Socio-economic indicators	Source & Reference year
2.1	Fishing for human consumption	Fishing for human consumption takes place mainly in the NUTS 2 coastal area and is performed mainly in the Danube Delta, Black Sea, the Danube, and some lakes. The fish-processing sector is located mainly near Bucharest and in other regions of the country, and it relies mainly on imported fish raw material brought mainly by trucks. The fish caught in the Black Sea and in the Danube Delta (NUTS 2 coastal area) is processed mainly in Tulcea and in a few factories in Constanța. The fish processing plant in Tulcea produces salted, smoked, or marinated products. Catches are also sold fresh to fishmongers or to the hotels and restaurants in the Danube Delta or Black Sea coast.	In 2013, 197 fishing vessels are active in the Black Sea fishery with ca. 450 persons employed. In the Danube Delta, there are 1.447 fishing boats.	The 2012 Annual Economic Report on the EU Fishing Fleet (STECF-12-10), Joint Research Centre www.ampeste.ro www.anpa.ro
2.2	Fishing for animal feeding	There is neither capture nor processing of fish for animal feed in Romania. The level of non-commercial fish stocks does not justify the use for animal feed.	----	Prodcom (2010) Experts knowledge (private stakeholder)
2.3	Marine aquaculture	There is only one offshore mussel farm (with annual production of 20 tonnes) and one onshore turbot farm (with an estimated annual production of 150 tonnes) located in the NUTS 2 region.	This activity has a very limited impact on the socio-economic indicators.	Experts knowledge (private stakeholder)
2.4	Blue biotechnology	n.a.	----	Experts knowledge (private stakeholder)
2.5	Agriculture on saline soils	One of the main activities in South and South East Romania is agriculture. It is reported that 47,71% of the agriculture is made on saline soils. Most of these saline soils, however, are in the Danube Delta where agriculture does not play an important role in land cultivation. 6,24% of the utilised agricultural area and 8,02% of the arable land in Romania is in NUTS 2 coastal area. The main products are sunflower and grapes.	The activity has a very limited impact on the socio-economic indicators.	EUROSTAT (2010) The Saline and Sodic Soils Map, Joint Research Centre
3. Energy and raw materials				
3.1	Offshore oil and gas	The offshore oil and gas sector remains one the most important activities in the NUTS 2 coastal area. The gas and oil resources in the Black Sea are exploited by international companies, which make use of international research and development knowledge and also utilize available local expertise. R&D activities focus on technological development and environmental aspects. Innovation brought in by companies that exploit offshore gas and oil fields, as well as Midia port facilities and inland transport pipelines, contribute to the competitiveness of this economic activity.	See indicators provided at national level (Table 2).	http://www.namr.ro/ http://www.naturalgaseurope.com/
3.2	Offshore wind	The NUTS 2 coastal area has great potential for both onshore wind farms, which are growing rapidly, and offshore wind farms. The wind maps for Romania reveal that, at 50 m above the sea level, the average annual wind speed is 9–10 m/s in the coastal area, and 8–9 m/s in the NUTS 2 coastal area. The characteristics of the wind offshore and onshore coastal area is the low turbulence, which offers a competitive advantage vs. the mountain area where the wind speed is greater than 10 m/s.	A plan of action exists for Romanian onshore wind power installation but none for offshore, but one permission has been granted for a 500 MW offshore wind farm, and one is in the strategy development phase. This MEA remains important mainly because of the employment factor owing to the intensive activity of exploration and reserves identification.	http://www.ewea.org/fileadmin/files/library/publications/statistics/Wind_in_power_annual_statistics_2012.pdf
3.3	Ocean renewable energy	There are no conditions for using this type of energy owing to the morphological characteristics of the Black Sea.	----	Expert knowledge (private stakeholder)
3.4	Carbon capture and storage	Carbon capture and storage is at an incipient phase, and the studies made for this have a small connection with the coastal area.	----	http://www.getica-ccs.ro/files/CCS_Roadmap-for-Romania.pdf

Function/activity		Activity overview	Socio-economic indicators	Source & Reference year
3.5	Aggregates mining (sand, gravel, etc.)	Marine aggregate mining does not exist in Romania. In 2010, in the NUTS 2 area, there were 128 enterprises dealing with "Other mining and quarrying" with 1.780 employees. This applies mainly to sand and clay mining taking place at NUTS 2 level.	----	European Aggregates Association (2010) EUROSTAT (2010)
3.6	Marine minerals mining	There is no such activity in Romania.	----	www.namr.ro (National Agency for Mineral Resources)
3.7	Securing freshwater supply (desalination)	There is no such activity (desalination) in Romania; the water supply is mainly ground or surface water. Romania has enough freshwater resources (surface or underground) and has not developed desalination.	----	Ministry of Environment
4. Leisure, working and living				
4.1	Coastal tourism	In addition to the Danube Delta Biosphere Reserve, which is unique, both in Europe and globally, several types of tourism are considered in the coastal area, including birdwatching, hunting and fishing, therapeutic tourism based on saltwater, sun- and mudbathing, post-traumatic recovery, and cultural tourism. Coastal tourism at NUTS 2 level is one of the most important activities in the area for employment, owing to the diversity of touristic activities in the Danube Delta and on the Black Sea shore. It is focused in NUTS 3 areas (Tulcea and Constanța).	Coastal tourism, among other sectors, has the second largest contribution in terms of GVA in the NUTS 2 region, even if the activity is seasonal. Employment is an important issue mainly because there are many micro and small enterprises involved. 21 % of the national accommodation capacity is in the coastal area and has a share of 22,5% of the total nights spent at national level.	EUROSTAT (2010)
4.2	Yachting and marinas	There are several marinas in Romania: Tomis marina, St Gheorghe marina, Mangalia's touristic port, all of which have great potential for nautical tourism, sporting activities, and entertainment, offering a shelter for sport sailboats.	This activity has a very low impact on the socio-economic indicators.	www.portofconstanta.com
4.3	Cruise tourism	n.a.	----	Experts knowledge (private stakeholder)
5. Coastal protection				
5.1	Protection against flooding and erosion	Marine coastal erosion is intensive in the southern part of the NUTS 2 coastal region. Several programmes for consolidating the embankments are usually carried out by the National Administration of Romanian Waters. In 2008, the total amount for NUTS 2 coastal protection was close to EUR 41 million. This amount covers mainly the implementation of the master plan for the southern coastal unit in Romania.	In the period 1998–2015, total expenditures will total EUR 312 million. In the Danube Delta Master Plan, ca. EUR 45 million is planned for the protection against flooding of villages around the Delta in the period 2006–2015.	http://ec.europa.eu/maritimeaffairs/documentat ion/studies/documents/romania climate change_en.pdf
5.2	Preventing salt water intrusion	n.a.	n.a.	Experts knowledge (private stakeholder)
5.3	Protection of habitats	The whole NUTS 2 coastline is under the NATURA 2000 special protection regime, except for the shore of Constanța where different economic activities take place. The protected marine area is 1.353km ² . The percentage of the NUTS 2 region covered by NATURA 2000 sites was 29,65 % in 2011. The most important, internationally-recognised habitat in the NUTS 2 area is the Danube Delta Biosphere Reserve, which has its own administration. There is an ongoing process of attributing the custody to a series of research institutes or NGOs for the other series of sites under Birds or Habitat Directives.	See indicators provided at national level (Table 2).	www.insse.ro (National Institute of Statistics) http://ec.europa.eu/maritimeaffairs/documentat ion/studies/documents/romania climate change_en.pdf
6. Maritime monitoring and surveillance				
6.1	Traceability and security of goods supply chains	See overview provided at national level (Table 2)..	----	----

Function/activity		Activity overview	Socio-economic indicators	Source & Reference year
6.2	Prevent and protect against illegal movement of people and goods	In the NUTS 2 coastal area, two institutions are involved in this activity: the National Customs Authority, which has one regional office in the NUTS 2 area and 13 offices in the coastal area, and the Romanian Border Police through the Coast Guard, which is a specialised unit for coastal area.	The National Customs Authority had 3.159 employees in 2011, of which 347 were in coastal area and a EUR 14.033.555 budget in 2012. The Coast Guard has a 2013 budget for the NUTS 2 coastal region estimated at EUR 9.036.160 and an undisclosed number of employees.	http://www.customs.ro/en.aspx
6.3	Environmental monitoring	Environmental monitoring at the NUTS 2 coastal area level (like the national level) is performed by various institutions such as the National Administration "ApeleRomane", through Dobrogea-Litoral Water District, which also oversees water-quality monitoring in the coastal area; the National Environmental Protection Agency with two local offices (Tulcea and Constanța); the National Institute for Marine Research and Development (NIMRD) "GrigoreAntipa" in Constanța; and the National Institute for Danube Delta Research and Development in Tulcea. Danube Delta Biosphere Reserve Administration oversees, inter alia, monitoring of the environment within the Biosphere Reserve limits. Non-public environmental monitoring is also carried out by several non-governmental institutions. Companies are obliged by law to perform regular self-monitoring, especially where a potential hazard could affect the environment.	Public expenditure for the environmental protection was 0,81% of national GDP in 2010. Environmental monitoring is carried out mainly by the Ministry of Environment, with a total budget in 2013 of EUR 490,87 million, out of which EUR 317,47million is for environmental protection). Compliance with environmental legislation is checked by the National Environmental Guard (953 employees and a 2013budget of EUR 8,83 million). Expenditure for national governmental environmental protection was EUR 1.231 million in 2011 and, in the same period, expenditure by the business sector was EUR 1.130,06 million.Public expenses for environmental protection of the NUTS 2 region were estimated at EUR 61 million in 2011.	EUROSTAT (2011) www.politiadefrontiera.ro/ - Border Police

3. List of the 7 largest, fastest growing and with most future potential marine and maritime activities

3.1 Ranking order of the 7 largest marine and maritime activities

The seven largest marine and maritime activities, listed in Table 5, were chosen based on a score calculated on the basis of the GVA and the number of persons employed in the sector, using 2010 data (for all activities scores see the Annex).

The economic crisis, which started in 2008–2009, directly affected the whole Romanian economy; however, the EU euro crisis also had an effect. Despite this, some activities managed to grow in 2010, compared with 2008. Some economic activities, such as inland waterway transport, and shipbuilding managed to recover from the 2009 crisis and maintain growth in 2010, some of them by restructuring the personnel. Other activities continued the employment correlated with investment activities, despite the decrease in value added, for example, offshore oil and gas, short-sea shipping.

Table 5 - Ranking order of the 7 largest marine and maritime activities in Romania⁵

Rank	Marine and maritime activities	GVA (million EUR)	Employment (*1000)	Score
1.	Coastal tourism	0,40	47,51	25,75
2.	Offshore oil and gas	0,088	37,81	19,34
3.	Shipbuilding and ship repair	0,360	23,60	13,60
4.	Water projects	0,168	11,87	6,77
5.	Inland waterway transport	0,144	6,39	3,91
6.	Fishing for human consumption	0,088	6,44	3,66
7.	Short-sea shipping (incl. Ro-Ro)	0,028	1,57	0,925

3.2 Ranking order of the 7 fastest growing marine and maritime activities

The seven fastest growing marine and maritime activities, listed in Table 6, were chosen on the basis of scores calculated using the compound annual growth rate for GVA and the number of persons employed in the period 2008–2010 (for all activities scores see the Annex).

Because public expenditure in water project activities decreased as a result of economic crisis, the activity slowed down, and personnel restructuring has carried out. For fishing, the scores calculated reflect the fleet capacity restructuring.

Table 6 - Ranking order of the 7 fastest growing maritime economic activities in Romania⁶

Rank	Marine and maritime activities	GVA (CAGR)	Employment (CAGR)	Score
1.	Short-sea shipping (incl. Ro-Ro)	-9,742%	17,119%	3,688
2.	Inland waterway transport	1,353%	-2,310%	-0,487
3.	Shipbuilding and ship repair	2,16%	-16,23%	-7,03
4.	Water projects	-13,77%	-9,80%	-11,78
5.	Offshore oil and gas	-49,63%	24,97%	-12,33
6.	Fishing for human consumption	-10,620	-16,770	-13,690
7.	Yachting and marinas	-14,03	-17,60	-15,81

3.3 Ranking order of the 7 marine and maritime activities with most future potential

The marine and maritime activities with most future potential, listed in Table 7, are based on scores assigned to each activity by expert views for the following six indicators: innovativeness, competitiveness, employment, policy relevance, spill-over effects, and sustainability. (For all activities scores, see the Annex).

⁵ The score is the result of the following: $[(\text{GVA billion} \times 10) + (\text{number of persons employed} / 1000)] / 2$.

⁶ The score is calculated by the average: $[(\text{CAGR GVA} + \text{CAGR Empl}) / 2]$.

Table 7 - Ranking order of the 7 marine and maritime activities with most future potential in Romania

Rank	Marine and maritime activities	Score
1.	Inland waterway transport	+++++
2.	Offshore oil and gas	++++
3.	Coastal tourism	++++
4.	Shipbuilding and ship repair	++++
5.	Water projects	++++
6.	Offshore wind	++++
7.	Short-sea shipping (incl. Ro-Ro)	++++

Inland Waterway transport

- **Innovativeness:** the development of inland waterway transport in Romania benefits from the innovative processes which are applied to overcome some of the hydro-morphological conditions on the Danube but also by the need to use this environmental-friendly way of moving products from the Black Sea ports to landlocked countries. **Score assigned: +**
- **Competitiveness:** Inland waterway transport is competitive in terms of both: transported loads and environmental aspects. **Score assigned: +**
- **Employment:** Inland waterway transport could create more jobs in the future mainly when related to intermodality and the development of the Danube ports. **Score assigned: +**
- **Policy relevance:** inland waterway transport is one of the most important issues for policy makers due to its importance to the economic development of the Black Sea and the Danube. **Score assigned: +**
- **Spill-over effects:** the development of inland waterway transport will be a strong driver for the modernisation of other infrastructure and industries in Romania, such as railways and motorways, short-sea shipping, shipbuilding and water projects. At present investments and future projects to develop navigability of the Danube are planned. **Score assigned: +**
- **Sustainability:** the comparative analyses assessing the environmental contribution of each means of transport showed the best results for water transport. **Score assigned: +**

Short-sea shipping (Incl. Ro-Ro)

- **Innovativeness:** the development of short-sea shipping in Romania is linked to the Constanta port which is the largest Black Sea port and one the most important in Europe. The increasing importance of the port as the main gate for EU-Asia trade is accompanied by investments and innovative solutions to increase the effectiveness, safety and to reduce the environmental impact of Short-sea shipping. **Score assigned: +**
- **Competitiveness:** the port of Constanta provides very good services for all types of cargo (container, bulk, liquid, gas) and is connected directly to Danube through canals. Supply chain integration also in terms of gas and oil, and planned infrastructural investments are strong arguments that confirm its competitiveness. **Score assigned: +**
- **Employment:** short-sea shipping is an important source of employment in Romania. Development of the Black Sea ports favours employment, even if this will be focused only on Constanta. **Score assigned: +**
- **Policy relevance:** maritime transport is important in policy-making in Romania but its development is strongly linked with other infrastructure development (motorways, railways, and waterways) which have an inconsistent development. **Score assigned: -**
- **Spill-over effects:** the development of short-sea shipping is likely to be a strong driver for the modernisation of other infrastructure in Romania, such as motorways, railways and waterway. Trade development in the Black Sea region leads also to the development of other businesses. **Score assigned: +**

- **Sustainability:** Short-sea shipping *per se* is a sustainable activity in terms of environmental effects. Improving the environmental impact of port related activities or using innovative engines for vessels is now tackled by the industry. **Score assigned: +**

Offshore oil and gas

- **Innovativeness:** Offshore oil and gas benefits from innovation by private investors who are exploring and exploiting the marine reserves. Increasing the effectiveness of extraction or reducing pollution are among the main concerns of private companies and the environmental authorities. **Score assigned: +**
- **Competitiveness:** Exploration work by international companies in the Black Sea has shown important gas reserves which will be exploited in the next decades. **Score assigned: +**
- **Employment:** Offshore gas and oil is an important source of employment in the coastal area especially due to the refining capacity on the Black Sea shore and the pipeline network. Forecasts show an increase in employment in this area if the alternatives to Nabucco are started. **Score assigned: +**
- **Policy relevance:** Offshore gas and oil remains an important issue in the policy-makers agenda even if some trials to move to shale gas have started. Increasing the gas stocking capacity and interconnectivity issues are on the agenda. **Score assigned: +**
- **Spill-over effects:** The development of offshore gas and oil and improvements in the transport network are likely to be strong drivers for other horizontal industries. **Score assigned: +**
- **Sustainability:** Gas reserves at present consumption rates will be exhausted in the foreseeable future. Few efforts are made to reduce consumption and increase the energy efficiency of industries. **Score assigned: -**

Coastal tourism:

- **Innovativeness:** in Romania coastal tourism is a rather traditional and seasonal activity, where innovation is often disregarded. However, Romania is making great effort to diversify its touristic offer by giving emphasis on environment-friendly and niche tourism. **Score assigned: 0**
- **Competitiveness:** Romania's coastal tourism strongest competitor is Bulgaria mainly for the summer tourism at the seaside. Even so, the richness of Danube Delta is a strength that many tourists seem to increasingly appreciate. Tourism development in the Danube Delta as a source of income diversification is a solution taken into account by the authorities (also for reducing the pressure on the fish stocks by fishermen, supporting their diversification activity). **Score assigned: +**
- **Employment:** coastal tourism is by far the main source of employment among maritime economic activities, and in the whole coastal region. Employment has continued to increase in the last few years, despite a contraction in GVA. The development of Danube Delta tourism will increase the employment in the northern part of the coastal are. **Score assigned: +**
- **Policy relevance:** tourism is the subject of several policies and strategies elaborated by the government. It is considered one of the most important Romanian values. It should be noted that in policy documents coastal tourism it is not focused mainly on the Black Sea coast sunbathing resorts but the accent moved to Danube Delta, health care tourism, hunting and fishing etc. **Score assigned: +**
- **Spill-over effects:** tourism development, mainly in the Danube Delta, will support the development of other horizontal industries and businesses and has a "multiplying effect". **Score assigned: +**
- **Sustainability:** Tourism development in Danube Delta by exploiting the traditional, wild and environmental aspects of the area is developing in a sustainable manner. **Score assigned: +**

Shipbuilding and ship repair

- **Innovativeness:** Shipbuilding and ship repair industry is challenged by the innovative processes which take place in Asia and in Daewoo Shipyard in Mangalia. The Romanian shipbuilding industry is private owned by international companies and the use of innovative processes and technologies is done on a regular basis. **Score assigned: +**
- **Competitiveness:** The shipbuilding sector in Romania is one of the most important in Europe and its competitiveness is related also to the development of short-sea shipping, inland waterway transport and offshore gas and oil. **Score assigned: +**
- **Employment:** shipbuilding is an important source of employment in coastal area which has several shipyards distributed alongside the coast and the maritime Danube. **Score assigned: +**
- **Policy relevance:** shipbuilding is an important issue on the European policies, but the national policies are not consistent enough. **Score assigned: 0**
- **Spill-over effects:** the shipbuilding industry is integrative for many businesses and SMEs. The further developments of such type of industry have a strong spill-over effect. **Score assigned: +**
- **Sustainability:** the sustainability of shipbuilding industry is ensured by the recycling capacity and the innovative technologies and techniques developed so far. **Score assigned: +**

Water projects

- **Innovativeness:** water projects are subject to permanent innovative processes in order to overcome the natural processes. There should be mentioned the significant research activity performed on Danube and on the Black Sea in order to understand the shore erosion patterns. **Score assigned: +**
- **Competitiveness:** there is a long tradition in water projects activity in Romania: channels, dam, dykes, ports, bridge, dredging, etc. **Score assigned: +**
- **Employment:** With regard to the employment this economic activity it is not important at the national scale, but for the coastal communities (sea or riverside) it constitutes an important source of employment. **Score assigned: +**
- **Policy relevance:** Water projects are relevant in the context of European and regional strategies being connected with inland waterway projects, short-sea shipping, shipbuilding, offshore oil and gas and fishing for human consumption. The approach of the issue in the national policies is not so consistent. **Score assigned: 0**
- **Spill-over effects:** The strong link of water projects with other maritime economic activities gives also the dimension of the possible effects brought by water projects. **Score assigned: +**
- **Sustainability:** The sustainable approach of water projects relies on environmental legislation which is a *conditio sine qua non* of any plan, project or activity bringing together technical expertise with research activities. **Score assigned: +**

Offshore wind

- **Innovativeness:** This activity involves significant research and innovation activities generated by the equipment and technology producers due to the challenges of the natural conditions. **Score assigned: +**
- **Competitiveness:** Competitiveness as compared to onshore wind farms is in some respect lower due to higher in installing costs, but on the other hand space availability is not, yet, an issue. **Score assigned: 0**
- **Employment:** As regards employment in this domain it is expected an increase if such projects will be launched. **Score assigned: +**
- **Policy relevance:** Offshore wind is relevant in the context of policies of energy independence and increasing the share of renewable energy production and consumption. As Romania almost reached

the 2020 final targets of Renewable Energy shares already and the updating of the Energy National Strategy was recently postponed because of shortage of financing, it is unlikely to expect the same growth as in the last years although the existent potential. **Score assigned: +**

- **Spill-over effects:** Offshore wind production has a spill-over effect on adjacent industries and services (heavy industry, electronics, water projects, short-sea shipping). **Score assigned: +**
- **Sustainability:** Sustainability has been analysed in the context of environmental restriction considerations which is preceding any investment in the protected areas. Anyway being a renewable energy the positive impact was emphasized. **Score assigned: +**

4. Growth scenarios for the 6 most relevant and promising marine and maritime activities

Below a synoptic overview of the 7 largest, fastest growing and with most future potential activities is provided:

Table 8 - Sets of top-7 activities ranking in order of size/growth/future potential

Top-7 current size	Top-7 recent growth	Top-7 future potential
Coastal tourism	Short-sea shipping (incl. Ro-Ro)	Inland waterway transport
Offshore oil and gas	Inland waterway transport	Offshore oil and gas
Shipbuilding and ship repair	Shipbuilding and ship repair	Coastal tourism
Water projects	Water projects	Shipbuilding and ship repair
Inland waterway transport	Offshore oil and gas	Water projects
Fishing for human consumption	Fishing for human consumption	Offshore wind
Short-sea shipping (incl. Ro-Ro)	Yachting and marinas	Short-sea shipping (incl. Ro-Ro)

Based on the above considerations, on the scores and calculations realised according to the methodology, on the general strategies, on the development plans and programmes, and on the rankings established in all three classifications, the following maritime activities, listed in Table 9, are considered to be relevant to the coastal zone of Romania.

Table 9 - 6 most relevant and promising marine and maritime activities

6 most relevant and promising marine and maritime activities
Inland waterway transport
Short-sea shipping (incl. Ro-Ro)
Offshore oil and gas
Coastal tourism
Shipbuilding and ship repair
Water Projects

4.1 Overview of the 6 most relevant and promising marine and maritime activities

The enhancement of all maritime transport sectors, including short-sea shipping and inland water transport, is directly linked with the sustainable use of the sea and coastal areas as well as environmental sustainability attributable to a more stringent policy on marine environmental protection, introducing specific requirements on the safety of ships and shipping, emissions from maritime transport, and the operation of ports. Coastal tourism, along with socio-economic sustainability, is tightly connected to coastal area environmental protection and sustainable development. Shipbuilding and ship repair and offshore oil and gas activities contribute substantially to socio-economic sustainability. Water projects are interconnected with port development (harbour dredging, reconstruction) and have great potential in terms of socio-economic and environmental sustainability.

Inland waterway transport

Inland waterway transport is among the most promising activities owing to its important role in the national economy in terms of its size and positive tendencies observed, despite the economic crisis. The existing infrastructure and interest to valorise the Danube transport axis make it one of the most promising in growing potential and importance. It is also one of the largest and fastest growing blue activities in Romania.

Short-sea shipping

Short-sea shipping grew in employment as a result of the extension and modernisation of port infrastructure and capacity and because of the strategic importance of the Constanta port. It also demonstrates a solid potential for growth in future. Short-sea shipping, owing to its integrative nature (port activity development, shipbuilding, inter-modality, and complementary economic activities such as water projects), has an important spill over effect. This activity is also one of the fastest growing in Romania owing to the country's location.

Offshore oil and gas

The selection of offshore oil and gas among the most relevant and promising activities is based on the size of the activity and on its growth in terms of employment generated by new-reserve identification in the Black Sea. There is also good infrastructure for transport, refining capacity, and inland pipeline transport from the port of Midia. Moreover, the activity is one of the largest and fastest growing.

Coastal tourism

Coastal tourism is one of the most important and most promising activities in Romania, both in terms of GVA and employment, and because of the coastal area's potential for a wide range of tourism activities, including ecosystem-based tourism in the Danube Delta. It constitutes an important source of employment in the coastal regions.

Shipbuilding and ship repair

Shipbuilding and ship repair is a strategic economic activity for the coastal area. It is among the largest activities in the coastal area and has a long tradition and a good infrastructure for both maritime and river ships. Facing serious competition from the Asian market, the Romanian shipbuilding industry is seeking its share of competitiveness in green technologies and innovation capacity. The strong link between shipbuilding and the development of short-sea shipping, inland waterway transport, and water projects could be a catalyst for ensuring the future growth of the industry. Shipbuilding is an economic activity incorporating several other horizontal economic activities (electronics, steel, paints, and navigation systems), so its development goes hand in hand with research and development, education, and training.

Water Projects

Water Projects was chosen because of its relevance to a wide range of operations, from dredging actions on the Danube to port development (maritime or fluvial), from dykes or dams to prevent flooding or erosion to offshore projects. Given the economic structure of the coastal economy and the potential demonstrated by inland waterway transport, short-sea shipping and coastal tourism, Water Projects is considered a relevant tool to assist their development.

4.2 Description of the nature of each of the 6 marine and maritime activities and their value chain

Inland waterway transport

The inland waterway transport stands for 76,64% of the GVA and 71,78% of the employment of the Romanian water transport. This activity was affected by the economic crisis in 2009 when the gross value added decreased to EUR 131,41 million from EUR 140,45 million in the previous year but managed to recover in 2010 to EUR 144,28 million. On the inland waterway, Romania has 30 ports and loading facilities; four of them being both fluvial and maritime ports (Sulina, Tulcea, Galați, Brăila), and 1.514 fluvial ships and barges and 102 maritime ships. The Romanian fleet consists mainly of barges with maritime grade (42,5%), which can access Romanian seaports, and river barges. The barges represent 23,4% of the fleet, and ships without propulsion represent 65% of the fleet. Tugs, pushers, and mixed ships represent 16,3% of the fleet, providing an average of four ships without propulsion to one powered ship. Ships for passenger transport represent only 4% of the fleet. In 2012, the main cargoes on the Danube included petroleum products through Sulina/Galați for Serbia; grains from Serbia or Romania to the Constanța port; urea, exports from TurnuMăgurele port to the port of Constanța; scrap, exports from different Romanian ports to the port of Constanța. There are very limited possibilities for containerised transport for long-range transport. For the first time in Romania, a modern powered ship for carrying containers also navigates on the Danube. Although this kind of ship (135 m length and 11,45 m beam) is often used on the Rhine in northern Europe, this is a novelty for the Danube River.

There are 15 major projects in different stages (evaluation, approval, or contracting) to increase the capacity to exploit the potential offered by the Rhine–Main–Danube axis. The increase of markets for agricultural and other bulk products will make the Danube a competitive and environmentally friendly way to transport, reducing the pressure on road transport, which is less sustainable. One of the sustaining factors is the opening of the largest container terminal in Constanța on the Black Sea.

The value chain in this activity consists of planning and monitoring activities, development and maintenance of infrastructure, shipbuilding, education and training, research and development, access to finance, labour development, associated services, networking, and promotion activities.

Short-sea shipping

Short-sea shipping is a core activity of Black Sea ports, accounting for 65,6% of the sea shipping GVA in 2010. Short-sea shipping is concentrated in the Port of Constanța, one of the largest ports in Europe, and the largest on the Black Sea, located at the crossroads of trade routes linking the markets of the landlocked countries from Central and Eastern Europe with the Trans-Caucasus, Central Asia, and the Far East. The favourable geographical position, the multimodal transport facilities on inland waterway or on roads, and the importance of the port of Constanța is emphasised by the connection with two Pan-European Transport Corridors: Corridor VII–Danube (inland waterway) and Corridor IV (railroad). The port of Constanța has 3.926 ha (two-thirds on water) and a northern dam of 8,34 km and a southern dam of 5,56 km protecting 140 operational berths. The maximum tanker capacity is 165.000 dwt and the maximum bulk carrier capacity is 220.000 dwt. There are four container terminals, the largest having 76 ha and 1,5 million TEU capacity.

In 2010, total traffic registered in Black Sea ports totalled 47.563.879 tonnes, and it increased in subsequent years (for example, in 2012 to 50.584.662 tonnes⁷). As for the port of Constanța, the data shows a recovery in 2011–2012, mainly in solid bulk, general goods, and containerised goods. There are also important shipping activities in two other maritime ports, Mangalia and Midia, as well as in the fluvial-maritime ports of Sulina, Tulcea, Galați, and Brăila.

The value chain consists of shipbuilding, ship operations, port infrastructure, logistics, inland waterway shipping, multimodal transport, suppliers, and other associated services.

Offshore oil and gas

Offshore oil and gas is a major conventional energy resource in the Romanian economy and one of the most important in the coastal area. Offshore oil and gas represents 50% of the oil and gas production in Romania. The total employment in this activity in 2010 was 37.811, and the GVA was EUR 87,9 million. This is still a long way from the 2008 level of EUR 346,5 million, but an improvement on the 2009 value of EUR 72 million.

Oil and gas reserves in the Black Sea (recently estimated at around 84 billion cubic meters) as well as the associated offshore and Midia port infrastructure are strong arguments for the development potential of this MEA. In 2010, the largest LPG terminal with a stocking capacity of 4.000 cubic meters was opened. It connects with railway, road, and inland waterway transport. On the other hand, permanent technological innovation that permit better exploitation of the reserves as well as an ecosystem-based approach are still valid arguments for considering offshore oil and gas (mainly gas) as an economic activity with development potential in the next decades. Preparatory discussions are being held between the government and the international consortium entitled to exploit the newly found gas reserves about construction of the transport pipeline from the exploration site to Midia. The gas and oil resources in the Black Sea are exploited by international companies, which make use of international research and development knowledge and also utilize available local expertise. R&D activities focus on technology development and environmental aspects.

The value chain consists of suppliers of exploration, field development, production, refining and distribution, which involve equipment, suppliers of transport systems (pipes, tanks), utilities, transport, R&D, storage systems, marketing, etc.

Coastal tourism

Tourism is one of the most developed activities in the coastal area. From a total of 279.000 beds available in the collective tourist accommodation establishment in Romania, 128.931 were in coastal regions (NUTS 3) comprising 46,21% of the total. Constanța accounts for 91,06% of the total number of nights spent in NUTS 2 coastal regions and Tulcea with 3,13%. From this point of view, the coastal region was, in 2010, responsible

⁷<http://www.portofconstantza.com>

for 21,9% of the national total number of nights spent. The contribution of the entire NUTS 2 regions to the GVA was, in 2010, EUR 87,2 million, almost half of the contribution in 2008.

The most important characteristic of coastal tourism in Romania is the potential for diversification. The tourist infrastructure consists of summer resorts on the Black Sea, as well as health care infrastructure using the therapeutic properties of salt water and mud baths (Techirghiol, Eforie Nord), and of hunting and fishing tourism or ecosystem-based tourism in the Danube Delta. The coastal area includes the Danube Delta Biosphere Reserve (547.000 ha hosting 300 bird species and 45 fish species), which is included on the UNESCO World Heritage List. In the Danube Delta, tourism activities are also based on rural tourism, scientific tourism, weekend tourism, Danube river-cruise tourism, and business tourism. Recently, to overcome the seasonal character of seaside tourism, the touristic possibilities of the Black Sea resorts, mainly Constanța, were diversified through yachting tourism and spas (Techirghiol, Eforie Nord, Mangalia, Saturn, Murighiol).

The value chain in the coastal area includes provision of travel, operators, and retail services including transport (road and waterway), food industry, fishing, and other related services.

Shipbuilding and ship repair

This is another activity that consolidates the coastal area's economy. Value added at factor cost was 1,34% of the total manufacturing GVA in Romania in 2010, and the employment share for the same year was 10,67% of the total employment in manufacturing. Several shipyards are placed alongside the Black Sea coast and in the coastal area of the Danube and play a major role in the local and national economy. Although ship repair suffered a strong decline in recent years, Romania has a very strong tradition in shipbuilding, and Black Sea, maritime Danube, or fluvial Danube shipyards are still among the most important actors on the European market. The innovativeness of this sector is mainly ensured by the private ownership of the major shipyards and of the European policies (LeaderSHIP 2020).

The development of the Danube transport corridor and the shift from coal and petroleum to gas (LNG, LPG) as a solution for energy-related security, as well as traditional and major private actors involved in the sector, are elements which were considered for the relevance of this maritime activity in line with the European strategy LeaderSHIP 2020 supporting the shipbuilding industry. Romanian maritime shipyards (mainly Constanța Shipyard and Daewoo Mangalia Heavy Industry) are among the top European players.

The value chain includes suppliers of components, electrical systems, navigation systems, steel, paints, furniture, automation, and other services.

Water projects

Water projects are linked with the construction of waterways, harbours, marinas, locks, dams and dykes, dredging, subsurface work, and river works. These activities are strongly linked with the coastal region because of ongoing investments to modernise Constanța South port and the corresponding dam, and modernising some docks in the port of Brăila. This activity is carried out by governmental entities for water works linked with docks, locks, ports and bridges, dredging the rivers, consolidating the shores, river or marine dams and dykes for flood prevention or coastal erosion protection, and modernisation and development of port infrastructure. There are also private water projects linked with offshore gas and oil activities.

Water projects are essential to generating economic development in the coastal area, facilitating other basic activities such as short-sea shipping, inland waterway transport, shipbuilding and ship repair. Related to innovativeness of water projects, mention should be made of the consistent research conducted on the Danube and on the Black Sea to understand the choking or shore-erosion patterns. The sustainability approach of the water projects relies on environmental legislation, which is the *sine qua non* of any plan, project, or activity that joins technical expertise with research. Employment in this economic activity is not important at the national scale, but for the coastal communities (sea or riverside), it constitutes an important source of employment.

The value chain includes research and development, supply of specialised ships and equipment, raw-material extraction and transport, and structure transport.

4.3 Description of economic and infrastructural scenario

Inland waterway transport

Two essential elements favour inland waterway transport: the Danube River and the Black Sea. The maritime port of Constanța is the largest port on the Black Sea and the fourth largest in Europe. It offers transport services of all types (auto, rail, maritime, air, pipeline) and provides warehouses and terminals for all types of goods. It is situated at the crossroads of the TEN-T corridors No. IV and VII—the Danube through the Danube–Black Sea Canal. The Danube through the port of Sulina in the Danube Delta is the other Black Sea gate to the Danube ports of Tulcea, Galați, and Brăila. On the other hand, the Black Sea–Danube Canal, which starts in nearby Constanța, allows the transfer of cargo or passengers to other ports on the Danube from landlocked countries. In 2012, the volume transited through the Canal reached a record value of 31 million tonnes.

One of the short-term objectives (2013–2016) of the governmental policies is the improvement of the Danube ports, which will support the intermodality approach to transport. Some of the measures envisaged include Constanța port development as a part of highways of the sea and increasing the operational capacity by 50% through the extension of the northern dam and building of new docks; finalising Danube shore consolidation on Sulina Channel and Lower Danube; and investments to increase the safety of Danube transport. Likewise, another important objective of intermodality is the modernisation and development of road infrastructure linking the Black Sea and Danube ports with the major TEN-T axis to deliver the required connectivity and ensure the flexibility of transport. It is also possible to increase passenger traffic on the Danube and Danube Delta as part of tourism.

The infrastructural scenario relies on intermodal transport capacity through the development of fluvial ports for both goods and passenger transport, and maritime-fluvial ports, as well as on the further development of the Constanța maritime hub. There is a strong relationship between inland waterway transport, water projects, shipbuilding and ship repair, and short-sea shipping. Containerised transport has already begun on the Danube, which is a step forward in connecting Constanța container terminals with Central Europe through a cheaper and more environmentally friendly means of transport. Inland waterway transport was emphasised as a funding priority in the recent Partnership Agreement, which underlined the environmental gains of the transport system. Inland waterway transport has played a major role, with a share, in 2011, of 21,7% of the total freight transport measured in tonne–kilometres on the national territory, compared with 50,3% for road transport and 28% for railways. In 2008, the structure was 70,2% for roads transport, 19% for railways, and 10,8% for inland waterway transport.

The main players in the market include Navrom, North Star Shipping, Romnav, and Veka Logistics. Liners⁸ operating on Danube include *Mainrom Line* (Constanța-Giurgiu Free Zone-Constanța); BRP *Rousse / NORD MARINE Constanța* (Constanța-Ruse-Drobeta, TurnuSeverin-Pancevo-Belgrade; <http://www.nordmarine.com/>); *Helogistics Holding*⁹, a new container line between Constanța-Budapest–Constanța.

Short-sea shipping

The gross weight of the goods carried to/from main ports in Romania increased in the period 2007–2011 of 27%, from 19.400 thousand tonnes in 2007 to 24.645 thousand tonnes in 2011, representing 65% of the total gross-weight (deep-sea + short-sea)¹⁰. Short-sea shipping enjoyed an increase of 45,78% of persons employed in 2010, compared with 2008. The advantages of low cost and decreased environmental pollution combined with the multimodal transport, including inland waterway transport, are strong arguments for the increasing role of short-sea shipping in the Romanian coastal area. This is further supported by activity in the port of Midia, the most important gas and oil hub on the Black Sea, and by the system of oil pipelines with a total length of 4.500 km and a transport capacity of 32 million tonnes yearly.

The infrastructural scenario for short-sea shipping relies on the further development of Constanța port infrastructure as the main port on the Black Sea and as the gateway for goods and passengers to and from Europe. This will be sustained by the development of inland-waterway transport on Danube canals and the

⁸ www.flavia-online.de

⁹ <http://www.helogistics.at/>

¹⁰ EUROSTAT - Short-sea Shipping - Country level - Gross weight of goods transported to/from main ports [mar_sg_am_cw]

Danube and by the development of maritime-fluvial and the fluvial ports as multimodal, logistic platforms to ensure transport flexibility and meet environmental targets. Transport infrastructure and services problems are concentrated in the public part of the system¹¹. The performance of both road and railway networks is below the standard required by modern logistics chains. Physical access to parts of the port of Constanța is also problematic, by both road and rail, as is the lack of dedicated regional intermodal terminals. Many industries require advanced logistics services (e.g. loading, repackaging, redirecting) where speed is essential. Completed or developing investment projects in Black Sea or Danube ports, as well as the projects implemented for restoring navigability on the Brăila–Călărași section of the Danube, are signs of a coherent development of this maritime activity. The Multimodal Transport Strategy 2020 emphasises the need to overcome the Black Sea's marginal status, resulting from geopolitical factors, and the need to develop the Danube region as the European backbone of inland-waterway transport in relation to Europe–Asia traffic.

Short-sea shipping is represented by the following container lines: Maersk, Zimrom, MSC, ABX, CMA CGM French Line, EmesFeederling, and Evergreen. Terminal operators present in the coastal ports¹² include UMEX SA, SOCEP, APM Terminals Europe, DP World Constanța, Chimpex, North Star Shipping, Oil Terminal Constanța, Frial, Silotrans, CFR Marfă–Constanța Ferryboat Branch, and Rompetrol Refinery.

Offshore oil and gas

Offshore oil and gas involves exploration and exploitation of the gas and oil reserves found on the continental platform of Romania. The oil and gas exploration and identification of new extraction fields could lead to the development of short-sea shipping as well. 70% of Romania's natural gas consumption is provided by national gas reserves, inland or offshore. Because one of its major objectives is achieving energy independence, many offshore exploration and exploitation permits have been issued by the National Agency for Mineral Resources. Two of these were exploration permits for shale gas, one of them in peripheral places in the coastal area (Vama Veche–Adamclisi). The main engine of future offshore gas and oil development is the new reserves found recently in the Black Sea by Exxon-OMV Petrom consortium and their plan to extract and transport the products through pipelines to Midia for refining and/or stocking. The economic scenario is based on the increasing activities in offshore gas exploration and production. If Romania imports more than 30% of its gas and some Central European countries depend strongly on gas imports, the development of new extraction fields using modern technologies, as well as increasing the storage capacity and transport network pipelines, will support offshore gas and oil activity. The port infrastructure based in Midia comprises the largest LPG terminal in the Black Sea Basin, Oil Terminal Constanța and Rompetrol Logistics which are operating an oil and refined products terminal for tankers of 165.000 tdw. The Petromidia Refinery and the Petro-Chemical Plant are also capable of processing 5 million tonnes of crude oil yearly; it is the only refinery on the Black Sea having its own unloading facilities through pipelines into a short-term storage capacity of 400.000 cubic meters and with direct access to the Danube–Black Sea Canal and direct access to all types of logistic capacities.

The main actors involved in this activity include OMV Petrom, ROMGAZ, Rompetrol, ExxonMobil, and Lukoil.

Coastal tourism

Tourism resources represent the most important potential for regional development in the coastal area. The Black Sea shore comprises 13 resorts, with accommodation units (hotels, motels, villas, camping), treatment amenities, and entertainment facilities along the coast, mainly in the southern part of Constanța between Năvodari and Mangalia. The Danube Delta, which is a scientific attraction, has great tourist potential, especially after 1990, when it was included in the Danube Delta Biosphere Reserve along with other adjacent areas. The number of beds available in the coastal region increased by 3,37% in 2010, compared with 2008. Seaside tourist activity is seasonal, running from June until September. It is supported in the first part of June and of September by governmental programmes targeted at retired persons. Weekend tourism is favoured mainly by the inhabitants of Bucharest because of the availability of the A2 highway, which links Bucharest to Constanța. Near Constanța, there are also important health centres, offering treatment of rheumatic or post-

¹¹<https://openknowledge.worldbank.org/bitstream/handle/10986/16036/746350RO0ESW0P000PUBLIC00Box377382B.pdf?se>

¹²<http://www.danubeports.info/index.php>

traumatic problems. Fishing, hunting, and environmental tourism represent the potential for development of tourism activities in the Danube Delta.

The coastal area's tourism potential stems from natural resources: More than 50% of the NUTS 2 region has the legal status of a protected area (Danube Delta, Black Sea, natural freshwater or seawater lakes, natural parks, health-care resorts) and on cultural resources (historical sites, religious sites, etc.). These were the basis for diversification of the tourism industry and provided a chance to expand the active period beyond the summer season, thus increasing employment and income. In the Danube Delta, there are 19 waterway circuits and nine terrestrial circuits. Ecotourism is also well developed in the area, which is famous for its high-quality vineyards. The tourism development scenario takes into account the importance of this economic activity for the region. It is the second in size in employment, and investments planned or already realised include the development of new beaches in the northern part of Constanța (Corbu); the passenger terminal in Constanța, with a capacity of 100.000 tourists/year; Mangalia touristic port, which is Romania's most modern, with a capacity of 146 vessels (greater than 18m long). Maritime-cruise tourism includes the Port of Constanța and the port of Tulcea, and Danube-cruise tourism includes the cultural ports of the Danube, from Iron Gates to the Black Sea. In 2011, the number of foreign visitors coming by sea transport reached 168.134, an increase of 10% over 2010 and an increase of 3% over 2009¹³.

Compared with Bulgarian coastal tourism, which is a direct competitor, Romanian coastal tourism has limited service diversification. The presence of major tour operators is limited (Thomas Cook Group plc), and in recent years, Romania was relisted and then delisted again by TUI AG, because of the structural problems. However, according to the Master Plan for the Development of National Tourism (2007–2026), the governmental strategic vision is to diversify and restore the foreign tourist influx, which is closely linked with the further development of touristic services and transport infrastructure.

Shipbuilding and ship repairs

Shipbuilding activity (including maintenance and the dismantling of wrecks) is very well represented in Romania, mainly in the maritime and river-maritime ports. Ninety-eight per cent of the ships built in Romania are exported. In the past three years (2008–2010), the gross value added by shipbuilding activity alone increased by 20%, focusing on new orders. The shipbuilders are organised in the professional association ANCONAV, gathering 95% of the shipbuilders in Romania; the organisation is a member of the Romanian Maritime Cluster. The main activity is the manufacture of commercial transport vessels. The main types of vessels built include bulk cargo between 25.000 and 170.000 dwt; cargo ships (container ships, Ro-Ro port, and general cargo ships) between 2.000 and 18.000 dwt; fishing boats; tugs/pushers, 300 to 60.000 HP; and barges up to 4.500 tonnes.

The development scenario for the shipbuilding industry takes into account the impact of the economic crisis, which started in 2008, but also the aggressive development of the sector in Asia (China, South Korea), which put serious pressure on European shipbuilders. The Romanian shipbuilding industry has the advantage of diversification and a high degree of specialisation of products and producers. It is expected that the shipbuilding industry will develop in Romania, providing greater value-added products, introducing green technologies, and innovating services. On the other hand, the development of other maritime activities in the Black Sea and the Danube Region, such as short-sea shipping, inland waterway transport (accompanied by water projects and intermodality), offshore oil and gas (new exploration and production sites and technologies), and coastal tourism (sea and/or fluvial cruise tourism) are elements that, with access to finance, will help the industry recover from several years of crisis. Another important element for the further development of this MEA is an increase in the operating capacity of Constanța port and the need for cheaper and cleaner transport from the Black Sea to Central Europe, defined by the Danube Strategy. In an effort to reduce the pollution and promote environmentally friendly inland-waterway transport, the EU is financing the introduction of LNG-fuelled vessels. LNG will be transported by inland waterway in specialised carriers and will be stored in Danube ports. This could be another initiative for developing the shipbuilding industry,

¹³<http://www.insse.ro/cms/files/publicatii/Turismul%20Romaniei%20-%20Breviar%20statistic%202012.pdf>

The main actors in shipbuilding include Șantier Naval Constanța, Daewoo-Mangalia Heavy Industries, VARD Tulcea, Aker Yards, Tawil Group-Sulina Shipyard, Damen Shipyard Galați, STV OSV Brăila, 2 x 1 Holding Cape Midia, and Argos Cernavodă.

Water projects

The development of the marine and fluvial port infrastructures and the growing interest in the Danube transport axis are considered the key elements for development of the MEA Water Projects, even if the economic crisis reduced the GVA 28% in 2009, compared with 2008. There was a symbolic recovery of 2,8% in 2010, justified by ongoing European-funded projects. There are ongoing investments in modernising Constanța South port and the corresponding offshore dam, and extending the south dam and modernising some docks in the port of Brăila. There are also regional cooperation programmes under the South east Europe Transnational Cooperation Programme, such as Adriatic–Danube–Black Sea Multimodal platforms, aimed at connecting ports with landlocked countries. Projects for fishing ports on the Black Sea coast (Midia and Mangalia) are being evaluated. The most important inland water projects are linked with navigability improvement on the Danube, lock rehabilitation, sea dams protecting Constanța port, and completion of the Danube–Bucharest Canal.

Strategy for a Sustainable Transport (2007–2013; 2020 and 2030) underlines the importance of the inland waterway transport, which is a priority of the Danube region, and which depends on major water projects. The development of other maritime economic activities, such as offshore gas and oil, short-sea shipping, and coastal tourism will require the contribution of this sector. Water projects have an impact on the environment but, owing to the environmental legislative framework, impact assessments must be carried out to achieve sustainable development. For 2011, EUR 240 million were allocated from the budget for the entire Ministry of Environment and Forestry investment programme, of which EUR 140 million have been earmarked for water infrastructure development. This means that, at the current annual funding level, the existing water infrastructure projects would be completed in approximately 28 years, and if new projects are added to the programme, the existing programme will be further delayed. Therefore, if the completion of water projects continues to be a strategic priority of the government, annual funding allocations should be increased.

Because this is a publicly funded maritime activity, the main players are public bodies such as national or local administrations or companies (Romanian Waters National Administration, Waterway Channels Administration, Maritime Ports Administration, Fluvial Danube Ports Administration, Maritime Danube Ports Administration, National Agency for Fishing and Aquaculture). Some of the water projects are related to private companies, mainly in offshore gas and oil sector (OMV Petrom, Exxon, Lukoil, Rompetrol).

4.4 Regulatory environment

The regulatory environment follows the European legislative framework in terms of directives and regulations. Nevertheless, the national legislation is, in many cases, unpredictable and confusing because of permanent changes, generated by the transposition of the Directives into national legislation, but also because other laws have an impact on several domains. The labour legislation, for example, is flexible enough and provides incentives for hiring unemployed persons in vulnerable segments (above 45, single parents, disabled, young graduates). However, the labour taxation is very high and has a negative impact on employment policies. Regarding the general legislation for new businesses, the time and costs of establishing a new business are at reasonable levels. In terms of Small Business Act progress, limited progress has been reported for most subjects (guarantee schemes, entrepreneurship development) and lack of progress in others (SME test in the decision-making process, bureaucracy simplification, "only once" principle, use of the IT&C platform for submitting applications, and monitoring the application process).

Name of the document	Relevant maritime economic activity	Positive impact	Negative impact	Comments
Law 162 / 2013 – regarding the reporting formalities for the ships entering or leaving Romanian harbours	Short-sea shipping	Simplifies the reporting procedures		Transposing Directive 2010/65/EC
	Inland waterway transport	Simplifies the reporting procedures		Transposing Directive 2010/65/EC
Government Ordinance 42/1997 regarding maritime and inland waterways transport, as amended		Sets the specific rules applicable to naval transport		
Law nr.97/2013 regarding the ship owner insurance for maritime claims	Short-sea shipping	Sets the insurance obligations		
Government Decision 1016/2010 establishing the system for vessel traffic monitoring and information entering/leaving in/from Romania's national navigable waters	Short-sea shipping Inland waterway transport	Enhancing the safety and efficiency of maritime traffic, improving the response of authorities to incidents or potentially dangerous situations at sea, including search and rescue operations, and contributing to a better prevention and detection of pollution by ships		Transposing Directive 2002/59 and Directive 2009/17
Order of minister of transport 1057/2007 on harmonised river information services (RIS) on inland waterways from Romania with European Community	Inland waterway transport	Establishes a framework for the deployment and use of harmonised river information services (RIS) in the Community		Transposing Directive 2005/44
Law nr. 101/2011 regarding the preventing and enforcement for environment damages	Short-sea shipping	Sets responsibilities for environmental damages		Transposing Directive 2088/99EC
	Inland waterway transport			
	Water projects			
	Offshore oil and gas			
	Coastal tourism			
	Shipbuilding and repair			
Government Ordinance 22/1999 regarding the port and waterway channels administration, also the ports and the inland waterway transport activities, as amended	Short-sea shipping	Sets the responsibilities and the patrimony of the administrative institutions		
	Inland waterway transport	Sets the responsibilities and the patrimony of the administrative institutions		
Law nr.159/2008 for joining European Agreement for the international transport of hazardous materials on inland waterways (updated in 2013)	Short-sea shipping	Applies the European Agreement for international transport of hazardous materials on inland waterways		
	Inland waterway transport	Applies the European Agreement for international transport of hazardous materials on inland waterways		
Law 412/2002 regarding the sea shipping and inland waterways shipping (last update 2011)	Short-sea shipping	Sets the institutional infrastructure		
	Inland waterway transport	Sets the institutional infrastructure		
Law nr. 274/2006 regarding the use of Black Sea beaches and the control of beach activities	Coastal tourism	Sets the requirements for coastal tourism activities		
Government Ordinance nr. 58/1998 regulating the tourism activities in Romania	Coastal tourism	Sets the institutional framework for tourism activities		
Ordinance nr. 107/1999 republished for touristic packages offers (updated in 2008)	Coastal tourism	Sets the relationship between the tourist and the tourism agency		Transposing Directive 90/314 EC
Law nr 107/1996 – Water Law with further modifications and amendments	Water projects	Sets the institutional infrastructure for water projects	Increases bureaucratic and financial burden.	Transposing Water Framework Directive
	Inland	Sets legal constraints for water pollution	There is a need to reduce	

Name of the document	Relevant maritime economic activity	Positive impact	Negative impact	Comments
	waterway transport		water taxes for docking.	
Governmental Emergency Ordinance 71/2010 on Marine Strategy Framework approved through Law 6/2011 with further modifications and amendments	Protection of marine ecosystem	Sets the legal framework for the protection and conservation of the Black Sea ecosystem to achieve Good Environmental Status by 2020		Transposing Marine Strategy Framework Directive (2008/56/CE)
Emergency Governmental Ordinance nr. 57/2007 establishing the special protection regimes for birds and habitats	Coastal tourism	Adds value to the tourism diversification opportunities	It is confusing in terms of responsibilities and restrictions, adding more costs for small businesses, same fees paid twice (to the environmental agency and to the custodian/administrator of the protected areas, allows the custodian/administrator to receive fees for visiting, taking pictures on third parties private properties.	Transposing NATURA 2000 Directives (Birds and Habitats)
	Water projects	Sets the regulatory environment for habitat and birds protection and adds sustainability requirements to economic activities		
	Inland waterway transport			
	Offshore oil and gas			
	Shipbuilding and repair			
	Short-sea shipping			
Law nr 195/2005 for Environmental Protection	Coastal tourism	Sets the institutional framework on environmental protection issues		
	Water projects			
	inland waterway transport			
	Offshore oil and gas			
	Shipbuilding and repair			
	Short-sea shipping			
Electric energy and natural gas Law nr. 123 /2012	Offshore gas and oil	Sets the institutional infrastructure		Transposing Directive 2009/73EC
Oil Law nr.238/2004	Offshore gas and oil	Sets the institutional infrastructure		
Law nr. 571/2003 – Fiscal Code	Coastal tourism	Reduced VAT (9%) for accommodation and accommodation including breakfast	Reduced VAT for services related to tourism is not available.	
	Offshore oil and gas	Starting 1 February 2013 a 50% supplementary tax deduction for eligible research and development expenses is granted for qualifying companies when computing their taxable profit	A 60% tax will be charged on the supplementary revenues derived by natural gas producers (including their subsidiaries and/or economic operators part of the same economic interest group), which also supply natural gas extracted from Romania to final consumers, from the deregulation of natural gas prices in case of supplies to final consumers.	
	Shipbuilding and repair	Regulates the tax regime	There is a need to reduce some taxes (canal taxes on Maritime Danube.	
Law nr. 85/2006 regarding the insolvency	Shipbuilding and repair		More flexible conditions are required for declaring the insolvency.	
Emergency Governmental Ordinance nr. 57/2013 regarding the promotion of renewable energy production (Green Certificates)	Shipbuilding and repair	It decreases for 4 years the number of Green certificates	Green certificates are increasing the prices of the energy for shipyards.	

5. Growth drivers and barriers to growth for the 6 most promising marine and maritime activities

The main drivers of growth identified in the NUTS 2 coastal area that could empower the most promising activities identified above are linked to the existing and traditional research and educational infrastructure-related maritime activities (maritime or inland waterway transport and shipbuilding). The basic elements for economic growth are in place in terms of available recruitment possibilities and training in the most promising maritime activities. Maritime clusters are one of the initiatives found in other EU 22 coastal countries, and are an important driver of economic activity in the coastal region and offer an integrated development of coastal economies.

Another important issue that could assist the growth of the coastal area is the strong relationship and coordination between environmental decision-makers and NGOs with the economic entities. It is very important that environmental restrictions and economic environmental impact are based on the best available practices and a rational set of measures.

There are some good synergies among some of the maritime economic activities such as shipbuilding and ship repair, inland waterway transport, short-sea shipping, offshore oil and gas, and water projects, and there is a major capability in coastal diversified tourism from seaside tourism to Danube Delta tourism.

Barriers to growth are related to the following issues: insufficient public funding for research, a low level of technological innovation and transfer (except where international operators are involved in shipbuilding and ship repair, offshore oil and gas), high pressure from environmental issues, low levels of infrastructure interconnectivity, difficult access to bank loans with supportive conditions for the identified strategic activities, low flexibility in educational and life-long learning schemes.

In terms of transport infrastructure, although Romania has important routes connecting Central Europe to the Black Sea and the Caucasus, accessibility remains a major barrier to regional growth, and the development of intermodal transport can stimulate the freight transport in Romania, also contributing to the development of short-sea shipping, inland waterway transport, and shipbuilding. Maintaining Romania's high degree of energy independence (88,3%) will depend on renewable energy, new gas and oil exploitation fields, on the AGRI project, and on increasing energy efficiency.

Table 10 - Growth drivers and barriers to growth for Inland waterway transport

INLAND WATERWAY TRANSPORT	Growth drivers	Barriers to growth
Maritime research	Extensive involvement and experience in maritime research.	Low level of public funding.
Development and innovation	Enhanced by Danube Strategy. Green knowledge intelligent systems.	Heavy dependence on the public funding.
Access to finance	Financing available through European or foreign funds.	High interest rates. Low public investment in supporting infrastructure.
Smart infrastructure	Danube ports network functional. Good infrastructure from Constanța to Danube represented by the Danube Canal. Constanța port placed on TEN-T network giving wide range of possibilities for operating ships and goods.	Low quality of other types of transport infrastructure. Unsolved bottlenecks on Danube for improving navigation conditions. Financial capacity of the government in the long term.
Maritime clusters	Maritime economic cluster established.	Low visibility of inland waterway transport opportunities. Lack of economic growth. Limited financial sustainability for the clusters.
Education, training and skills	Good opportunities for vocational education in the area. Higher education available in Constanța and Galați.	Lack of stronger relationships between educational institutions and private companies.
Maritime spatial planning	Plans for expansion of multimodal capacities of the port of Constanța to a Black Sea hub status.	Conflict with other Inland waterway users.
Integrated local development	Inland waterway transport is integrated in local development strategies. Intermodal Strategy approved.	----
Public engagement	Strong cooperation among riverside municipalities.	Lack of Intermodal Master Plan.

Table 11 - Growth drivers and barriers to growth for Short-sea shipping

SHORT SEA SHIPPING	Growth drivers	Barriers to growth
Maritime research	Extensive involvement and experience in maritime research; many Universities and R&D institutions involved in maritime research. Maritime research concentrated at NUTS 2 level.	Reduced funding owing to the economic crisis. Low levels of national public funds for research.
Development and innovation	Innovation is promoted and applied constantly.	Insufficient investments for maintenance and development of the ports infrastructure. Strong competition from low cost products from the Far East.
Access to finance	Available financing through European Structural Funds SOP-T, TEN-T and Danube Strategy.	Difficulties in obtaining shipbuilding credit.
Smart infrastructure	First class general infrastructures (energy, telecommunications, etc.). Modern operating environment. Constanța port is on TEN-T corridors (railway, inland waterway and road). Complementarities with Inland Waterway transport by Danube to Central Europe.	Lack of investment in port equipment infrastructure. Low interconnectivity with other means of transport.
Maritime clusters	A maritime economic cluster was founded in 2011.	Financial support for the cluster is not adequately provided.
Education, training and skills	High level of specialised education and training available in NUTS 2 region. Good professional training at all levels.	Problems in attracting sufficient numbers of entrants. High cost of salaries and social security contributions.
Maritime spatial planning		Conflicts with other users of maritime space.
Integrated local development	The European integrated maritime policy concept has been incorporated in policy.	Conflicting policy goals. Lack of sufficient road connections with multimodal platforms.
Public engagement	Long tradition in integrated policies. Partnership Agreement for the 2014–2020 programming period. National Strategy for Intermodal transport available.	Reduced public funding. Lack of a Transport Master Plan. Reduced administrative capacity.

Table 12 - Growth drivers and barriers to growth for Offshore oil and gas

OFFSHORE OIL AND GAS	Growth drivers	Barriers to growth
Maritime research	Availability of high quality of scientific and research institutions dealing with oil and gas issues.	Investment into R&D by private companies is relatively low. Low level of government funding for RD&I.
Development and innovation	Innovation is seen as key to remain competitive. Cooperation of research institutions and industry. Good reserves in the Black Sea.	Competition of public funding and skills with new renewable energy D&I projects. Insufficient innovation on environmental issues.
Access to finance	The market is shared among international companies with easy access to finance.	High tax rates. Competition for investments with other regions and markets. High interest rates for local loans.
Smart infrastructure	Effective port and heliport system. Well-developed supply chain. Well-developed storage, refinery, and transportation system. Good supply chain infrastructure.	High tax rates (but comparable with peer EU countries).
Maritime clusters	----	No specialised cluster for offshore gas & oil
Education, training and skills	Wide range of education opportunities. Excellence in higher education. Existence of vocational schools. Good cooperation with the industry.	Shortage of skills. Low level of public funding.
Maritime spatial planning	Existence of local spatial planning. Specialised port for oil and gas is part of spatial planning.	Environmental restrictions and obligations.
Integrated local development	Industry is well-integrated with local communities.	Creates competition with local industries. Environmental issues.
Public engagement	Energy independence is a strategic objective for Romania. AGRI alternative to Nabucco could be a solution.	Strict regulatory systems and controls. Updated Energy Strategy does not have funding yet. Low levels of transparency and ineffective consultation process.

Table 13 - Growth drivers and barriers to growth for Coastal tourism

COASTAL TOURISM	Growth drivers	Barriers to growth
Maritime research	Strong institute for tourism research and development. Two important maritime and delta research institutes.	Difficult access to financing. Shortage of new comers in research activity. Weak involvement of SMEs in research.
Development and innovation	Environmental protection policies; business support policies.	Low use of innovations for tourism development.
Access to finance	Availability of public support through EU structural funds operational programmes.	Difficult access to credit because of financial crisis. Access to public financing is too bureaucratic.
Smart infrastructure	Effective port and airport system. Good general infrastructures (energy, telecommunications, etc.). Good connections by all means of transport with other regions.	Low connectivity within the NUTS 2 region.
Maritime clusters	A Maritime cluster established.	Low level of motivation for different actors involved.
Education, training and skills	Widespread presence of vocational schools and universities for tourism. Higher education is possible in Constanța Universities.	Tertiary education share is still low. Lifelong learning is not consistent. Seasonal personnel employed in tourism have low qualification. Qualified personnel emigrating abroad.
Maritime spatial planning	The Agency for Conservation of Coasts manages effectively the sustainable development of coastal areas. Plan for Urban Development in the coastal area.	High pressure from environmental public/private bodies and low level of consultations.
Integrated local development	Advanced urban development planning. Local development plans include tourism as a development opportunity.. Costal tourism is eligible within the Fisheries Local Action Groups covering the coastal zone of NUTS 2 (Danube and Danube Delta). Regional Development Strategy for NUTS 2 region is under preparation.	Weak focus on regional integration.
Public engagement	Supportive legislation permitting companies to use Tourist Pass tickets for the employees.	Legislation is unclear due to constant changes. Local administration engagement is much more efficient than the national one.

Table 14 - Growth drivers and barriers to growth for Shipbuilding and ship repair

SHIPBUILDING AND SHIP REPAIR	Growth drivers	Barriers to growth
Maritime research	Extensive involvement and experience in maritime research. Multinational companies involved in shipbuilding with access to own sources of research.	Low levels of national public financing for national R&D. The average age of the researchers is increasing. Poor coordination between research and businesses.
Development and innovation	High level of R&D and innovation. Tradition in offshore equipment and tankers.	Shipbuilding capacity is under exploited. Low capacity of technological transfer.
Access to finance	Sufficient access to finance (solid banking system). Multinational companies involved with access to funding.	Lack of standard financing scheme for shipbuilding in terms of currency risks, pre financing and guarantees for export. Higher interest rates than the Asian market.
Smart infrastructure	Shipyards infrastructure is improving rapidly. Good geographical position and connectivity between Danube and Black Sea.	Low quality of diversified infrastructure network (roads, railways). Economic growth too low to generate constant development.
Maritime clusters	Well organised professional associations. Maritime economic cluster established recently.	Not enough critical mass and organisational capacity in the cluster to maintain financial self-support mainly as a result of the absence of public support.
Education, training and skills	Very good standard of education. Long tradition of high level specialised training. Skilled and experienced personnel. Very good connection between the industry and the educational institutions.	Mean age of shipbuilding workforce is rising. Internship is not regulated by legislation.
Maritime spatial planning	New areas for development (e.g. offshore technologies). Shipyards are an important part of the maritime spatial planning.	No minimum local content/local sourcing requirements for companies exploring and exploiting Black Sea resources.
Integrated local development	Close ties between shipyards and local community.	Environmental issues raised by local communities and NGOs. Low levels of domestic orders and domestic industrial integration.
Public engagement	Economic missions organised by the Ministry of Economy for widening the export potential of shipbuilders.	Lack of a consistent national strategy for shipbuilding sector. Low level of transparency and ineffective consultation process.

Table 15 -Growth drivers and barriers to growth for Water projects

WATER PROJECTS	Growth drivers	Barriers to growth
Maritime research	Strong research infrastructure and tradition based at the National Institute for Marine Research and Development "GrigoreAntipa" and University of Constanța.	Inconsistent public funding. Funding is below the EU average.
Development and innovation	Fair technical capacity in university and also in private companies.	Weak implementation of innovation at companies' level. Large dependence on government funding.
Access to finance	Availability of public (national and European) and also private financing for water projects.	National financing is insufficient. Public funding is delayed owing to bureaucracy.
Smart infrastructure	Water framework Directive, MSFD, Habitat Directive implemented and functional.	There is some lack of coherence in the infrastructure development. Financial capacity of the government in the long term.
Maritime clusters	Maritime cluster established.	Not enough critical mass. Uneven distribution of economic power among the stakeholders.
Education, training and skills	Specialised faculties in almost all public universities, including the ones in Sud-Est Region. Vocational schools available in Sud-Est Region.	Lack of attractiveness owing to economic performance of the sector. Demographic decline and work force migration.
Maritime spatial planning	Concept is well known and applied. National Committee of Coastal Zone is functional.	Unbalanced economic power among the stakeholders. Conflicts with environmental organisations.
Integrated local development	Water projects are included in local development strategies as critical for economic development.	Low coherence of different projects.
Public engagement	Major water projects are public projects as part or different water basin management plans.	Low level of stakeholders' involvement. Public consultation is formal, environmental issues minimised or exaggerated by the stakeholders. Sometimes unfavourable media coverage. Low level of transparency and effective consultation.

6. Analysis of maritime strategies at the regional and national levels, as well as those under preparation and their links with Smart Specialisation Strategies

The national strategies, both general and specific to the sectors' development, are supporting in a dispersed manner the maritime activities identified as relevant and promising. A strong connection exists mainly between the identified activities and one of the Blue Growth objectives: healthy environment, increased growth potential of activities, and increased attractiveness of coastal areas.

The Romanian Strategic Concept for Spatial Developments 2030 has nine main objectives, most of them supporting the MEAs identified above, for example, capitalising peripherality by developing Romania's role as a connector at continental and intercontinental levels. Strengthening and developing the interregional connectivity networks or connecting to the European network of spatial development is highly supportive of inland waterway transport, short-sea shipping, coastal tourism, and offshore oil and gas. There are important elements in this strategic document allowing both Blue Growth objectives, such as increasing the growth potential of some maritime activities and emphasizing the attractiveness of the coastal area, and also allowing Smart Specialisation Strategies for regional and international cooperation in research, education green growth, and adding critical mass to potential maritime clusters.

National Strategy for a Sustainable Transport 2007–2013, 2020, 2030 focuses on TEN-T axis development with a nodal link in the Port of Constanța, using the Danube and Danube canals, railway, and road transport to ensure a high level of interconnectivity and intermodality. In the context of this strategy, it was considered important to have a good mix of transport possibilities to achieve the environmental prerequisites and a higher degree of sustainability. This strategy affects all five maritime economic activities (water projects, port and dock construction, expansion, and rehabilitation, Danube bridges and locks or dredging operations, short-sea shipping and inland waterway transport as direct subjects of the strategy, shipbuilding industry as a supplier for specialised ships, barges, among others, coastal tourism by increasing accessibility and diversifying tourist transport). The blue growth focus areas envisaged by these five most promising maritime activities are linked with blue growth, blue technology, and maritime, coastal and cruise tourism. From the point of view of the connection between this strategy and smart specialisation, it is worth mentioning that the maritime economic activities are generating green growth by introducing sustainability indicators. They stimulate “research infrastructure development” and the use of “key enabling technologies”, “promoting clusters development”, and “Internationalisation”, as well as “university–enterprise cooperation”. At the moment there is no General Master Plan for Transport.

National Sustainable Development Strategy 2013, 2020, 2030 provides key milestones for the development of Romanian society for the sustainability criteria. It refers to all of the economic activities and sets sustainability targets on transport (including shipbuilding), energy (including offshore gas and oil), tourism, and water projects. The objectives of this strategy are connected with maritime, coastal, and cruise tourism for coastal tourism and with blue technology for the other five maritime economic activities, as common focus areas with Blue Growth. Looking at the smart specialisation, there are clear links to green growth and key enabling technologies, capable of greening the economic activities.

National Strategy on Biological Diversity Conservation 2013–2020 sets environmental issues as the main objective for all economic activities, trying to achieve good conservation status and adding green objectives to all economic activities that could affect the environment. For this reason, the objectives are the same with some of the Blue Growth focus areas for the maritime economic activities and that have a direct impact on biodiversity (inland waterway transport, water projects, and offshore oil and gas), and that is blue technology and is connected with maritime, coastal and cruise tourism as coastal tourism could be developed by increasing biodiversity protection in some areas (the Danube Delta). From the point of view of smart specialisation, the objectives of this strategy are linked: in the case of the selected maritime economic activities with green growth, and in the case of coastal tourism with cultural and creative industries. As for the Inland waterway transport, water project and offshore gas and oil, it will achieve green growth by using research-based technologies in cooperation with universities.

The Master Plan for Protection and Rehabilitation of Coastal Area (2010) sets the objectives and the measures for the protection of the coastal habitats and the coastal economic and social infrastructure. In this respect, this plan is connected with inland waterway transport (for maritime-fluvial ports), with shipbuilding (shipyard location and specialised equipment), water projects (dredging, dams building), offshore gas and oil as there is a specialised port infrastructure for this, short-sea shipping and coastal tourism as activities affected directly by the degradation of coastal area. In terms of blue growth objectives, the focus areas involved are linked with blue technology and of course, maritime, coastal and cruise tourism. Regarding the smart specialisation, protection of coastal area could be linked in the case of the six maritime economic activities as having development potential with research infrastructure, centre of competence, science parks and university–enterprise cooperation, green growth, and Internationalisation.

The Tourism Development Master Plan (2007–2026) set the objectives for the development of all kind of potential touristic activities in different parts of Romania. One of the most important areas for touristic development is the coastal area (South East NUTS2 level), which offers the possibility of a diversified portfolio of tourist activities owing to the unique biodiversity and landscape of the Danube Delta and traditional seaside tourism in the southern part of the Romanian Black Sea shore. Excepting offshore oil and gas, the other five economic activities are connected with Blue Growth objectives. Coastal tourism, short-sea shipping, and inland waterway transport in terms of maritime, coastal, and cruise tourism and water projects and shipbuilding in terms of blue technology. From the smart specialisation point of view, all of the activities are linked with green growth owing to the special status of the NUTS2 region from the biodiversity and habitat protection points of view. On the other hand, coastal tourism is linked with cultural and creative industries and internationalisation, and the other economic activities could be linked with research infrastructure, centres of competence, and science parks, in order to develop dedicated infrastructure for coastal tourism development (floating hotels, passenger boats, habitat restoration activities, etc.).

The Danube Strategy is a good example of horizontal integration of maritime-related activities promoting the development of waterway transport corridors from Asia to Central Europe through various regional partnerships and connecting them to various other types of transport in order to offer flexibility assuring the multiplying effect of the development. The Danube Strategy meets the following Blue Growth focus areas: blue energy and blue technology for offshore gas and oil, maritime, coastal and cruise tourism for inland waterway transport and coastal tourism, and blue technology for short-sea shipping, water projects, and shipbuilding, because one of the main objective of DS is environmental protection in the Danube region. There are also strong links with Smart Specialisation Strategies, mainly regarding green growth, because the environmental issues are crucial, and research infrastructure, centres of competence and science parks, and internationalisation because it is a European strategy to the benefit of all Danube countries.

LeaderSHIP2020 Strategy is the EU shipbuilding industry's response to the competitive challenges it faces. It was designed to address all important issues for the competitiveness of this industry sector, using a knowledge-based development strategy. The maritime economic activity linked with this strategy is connected with the blue technology focus area in Blue Growth. Regarding the smart specialisation links, the innovation friendly business environment for SMEs, financial engineering instruments, green growth, and internationalisation should be mentioned.

The Romanian South East Region Development Master Plan 2010–2020 focuses on matters specific to the coastal region and thus is linked with all six maritime economic activities; the blue growth focus area being connected with all, except coastal tourism, which is connected to maritime, coastal, and cruise tourism, because tourism is one of the most important activities in the region.

The South East Europe Transnational Cooperation Programme in the Regional Policy's Territorial Cooperation Objective. It covers a wide range of aspects, including common projects linked with coastal economic activities. In respect to the blue-growth focus areas, there are connections between blue technology and offshore gas and oil, short-sea shipping, shipbuilding, inland waterway transport, and water projects; between maritime, coastal and cruise tourism and coastal tourism. Smart specialisation links are based mainly on research and innovation such as research infrastructure centres of competence and science parks, university–enterprise cooperation, green growth, and internationalisation.

The **National Strategic Plan for Fisheries 2007–2013 (Axis 4)** provides the basis for fishing and aquaculture activities of moderate dimensions in the Black Sea, and more a social dimension in the Danube Delta, as well as tools for local strategies, through Axis 4 (Fisheries Local Action Groups – Community Led Local Development) to develop economic growth of the fish-based communities (there are three FLAGs in the NUTS2 coastal area, covering both the Black Sea and the Danube Delta). Actions of this type are very important for specialised tourism development and diversifying the economic activities of fishermen's communities.

The Intermodal Transport Strategy 2020, published in May 2011, describes the key objectives for the intermodality network development. The main elements in this strategy are the Black Sea and the Danube Region considered as having the most development potential for Central and Eastern European development. The maritime economic activities related to this strategy, and identified in this analysis as having development potential, are inland waterway transport, short-sea shipping, shipbuilding, and water projects. The strategy looks inter alia towards reducing European greenhouse gas emissions by reducing road transport (the main contributor of carbon dioxide emissions), increasing the growth potential of activities, and using advanced technologies (LNG and LPG ship engines). The main connection with the blue-growth focus area is blue technology, and in terms of smart specialisation strategy, all of the aforementioned activities are linked to green growth, clusters, and key enabling technologies.

Romania Energetic Strategy 2007–2020 establishes the energy resources development strategies based on three key elements: energy safety, sustainable development, and competitiveness. From these points of view, even if renewable energy is emphasised, offshore gas and oil is still considered a tool for ensuring imported energy independence, through the development of new sites, improving extraction and liquefying technologies, and increasing gas-storage capacity. Offshore gas and oil is linked with marine and mineral resources and blue technology areas of Blue Growth. In terms of smart specialisation, offshore gas and oil could be linked with university–enterprise cooperation, key enabling technologies, and research infrastructure, centres of competence, science parks owing to the need to improve the technologies and increase environmental protection standards.

Table 16 - Policies/interventions towards most promising marine and maritime activities and the Blue Growth objectives

Level	Strategies	Objectives	Most relevant and promising marine and maritime activities	Links to BG Objectives	
National	National Strategy for a Sustainable Transport 2007-2013, 2020, 2030	Update and develop the transport network with European and national relevance, increasing safety and services quality; Liberalize the transport internal market; Stimulate the economic development and competitiveness; Reinforce the social and territorial cohesion at national and regional level; Compatibility with the environment.	Water projects	Reduce the European greenhouse gas emissions; Diversification of coastal communities activities; Healthy environment; Increase the attractiveness of coastal areas; Increase the growth potential of activities; Advances in technology.	Blue technology
			Coastal tourism	Diversification of coastal communities activities; Increase the attractiveness of coastal areas; Increase the growth potential of activities.	Maritime, coastal and cruise tourism
			Short-sea shipping	Reduce the European greenhouse gas emissions; Diversification of coastal communities activities; Healthy environment; Increase the attractiveness of coastal areas; Increase the growth potential of activities.	Blue technology
			Shipbuilding and ship repair	Increase the growth potential of activities, Advances in technology	Blue technology
			Inland waterway transport	Reduce the European greenhouse gas emissions; Diversification of coastal communities activities; Healthy environment; Increase the attractiveness of coastal areas; Increase the growth potential of activities.	Blue technology
National	National Sustainable Development Strategy 2013, 2020, 2030	Environmental protection through measures that make it possible to decouple economic growth from negative environmental impacts; Social equity and cohesion through observance of fundamental human rights, cultural diversity, gender equality and combating discrimination of any kind; Economic prosperity through the promotion of knowledge, innovation and competitiveness with an aim to ensure high living standards and full and high-quality employment; Meeting EU's international responsibilities through the promotion of democratic institutions in the interest of peace, security, freedom and of the principles and practice of sustainable development throughout the world.	Water projects	Healthy environment.	Blue technology
			Coastal tourism	Healthy environment; Diversification of coastal communities' activities.	Maritime, coastal and cruise tourism
			Short-sea shipping	Healthy environment; Advances in technology.	Blue technology
			Offshore gas and oil	Healthy environment; Advances in technology; Enhance efficiency of harvesting the European energy resources.	Blue technology
			Shipbuilding and ship repair	Healthy environment; Advances in technology; Enhance efficiency of harvesting the European energy resources.	Blue technology
			Inland waterway transport	Healthy environment; Advances in technology; Enhance efficiency of harvesting the European energy resources.	Blue technology
National	The Strategic Concept of Spatial Development – Romania 2030	Connecting Romania to the European network of spatial development poles and corridors; Structuring and developing the network of urban localities; Asserting the urban-rural solidarity, appropriate with the categories of territories; Consolidating and developing the network of inter-regional connections;	Offshore gas and oil	Increase the growth potential of activities.	Blue technology, Marine and mineral resources
			Coastal tourism	Increase the growth potential of activities; Diversification of coastal communities activities; Increase the attractiveness of coastal areas.	Maritime, coastal and cruise tourism
			Short-sea shipping	Increase the growth potential of activities;	Blue technology

Level	Strategies	Objectives	Most relevant and promising marine and maritime activities	Links to BG Objectives
		Valorising the natural and cultural heritage.		Security of supply.
			Inland waterway transport	Increase the growth potential of activities; Diversification of coastal communities activities; Advances in technology; Increase the attractiveness of coastal areas. Blue technology
			Shipbuilding and ship repair	Increase the growth potential of activities; Advances in technology. Blue technology
			Water projects	Increase the growth potential of activities; Diversification of coastal communities activities; Advances in technology; Increase the attractiveness of coastal areas . Blue technology
National	National Strategy on Biological Diversity Conservation	Development of legal and institutional framework; Achieving the coherence and the management efficiency of the national protected areas network; Achieving a favourable conservation status for protected species; Sustainable use of the biodiversity components; Ex-situ conservation; Invasive species control ; Access to genetic resources and fair sharing of the benefits generated by their use; Supporting and promoting the traditional knowledge, practices and innovations; Research development and promoting technological transfer; Public communication, education and awareness.	Coastal tourism	Healthy environment; Diversification of coastal communities activities; Increase the attractiveness of coastal areas. Maritime, coastal and cruise tourism
			Inland waterway transport	Healthy environment; Advances in technology. Blue technology, Blue energy
			Offshore gas and oil	Healthy environment; Advances in technology. Blue technology, Blue energy
			Water projects	Healthy environment; Advances in technology. Blue technology
National	Master plan for Protection and Rehabilitation of Coastal Area	Development of a programme and of the subsequent measures for coastal area protection in order to rehabilitate the shoreline and to protect the adjacent land and land or marine ecosystems; Protect the economic and social infrastructure endangered by coastal erosionImplementing an integrated monitoring programme for coastal area in order to support the maintenance operation on average and long term.	Offshore gas and oil	Increase the attractiveness of coastal areas; Advances in technology; Increase the growth potential of activities. Blue technology
			Inland waterway transport	Increase the attractiveness of coastal areas; Advances in technology; Increase the growth potential of activities. Blue technology
			Water projects	Increase the attractiveness of coastal areas; Advances in technology. Blue technology
			Coastal tourism	Increase the attractiveness of coastal areas. Maritime, coastal and cruise tourism
			Shipbuilding and ship repair	Increase the attractiveness of coastal areas; Advances in technology. Blue technology
			Short-sea shipping	Increase the attractiveness of coastal areas; Advances in technology; Increase the growth potential of activities. Blue technology
National	Tourism Development Master Plan 2007–2026	Emphasising the touristic areas with high and very high potential and setting the required infrastructure in order to increase their value and to facilitate the access for promoting sustainable and high quality tourism.	Coastal tourism	Diversification of coastal communities activities; Increase the attractiveness of coastal areas; Increase the growth potential of activities; Increase the attractiveness of coastal areas. Maritime, coastal and cruise tourism
			Short-sea shipping	Diversification of coastal communities activities; Maritime, coastal

Level	Strategies	Objectives	Most relevant and promising marine and maritime activities	Links to BG Objectives	
				Increase the attractiveness of coastal areas; Increase the growth potential of activities.	and cruise tourism
			Inland waterway transport	Diversification of coastal communities activities; Increase the attractiveness of coastal areas; Increase the growth potential of activities.	Maritime, coastal and cruise tourism
			Water projects	Diversification of coastal communities activities; Increase the attractiveness of coastal areas; Increase the growth potential of activities; Increase the attractiveness of coastal areas.	Blue technology
			Shipbuilding and ship repair	Diversification of coastal communities activities; Increase the growth potential of activities.	Blue technology
European	Danube Strategy	Connecting the Danube Region; Protecting the Environment in the Danube Region; Building Prosperity in the Danube Region; Strengthening the Danube Region.	Offshore gas and oil	Reduce the European greenhouse gas emissions; Healthy environment; Advances in technology; Increase the growth potential of activities.	Blue technology, Blue energy
			Short-sea shipping	Advances in technology; Security of supply; Increase the growth potential of activities.	Blue technology
			Coastal tourism	Healthy environment; Increase the growth potential of activities.	Maritime, coastal and cruise tourism
			Inland waterway transport	Reduce the European greenhouse gas emissions; Healthy environment; Advances in technology; Security of supply; Increase the growth potential of activities.	Maritime, coastal and cruise tourism
			Water projects	Advances in technology; Security of supply; Increase the growth potential of activities.	Blue technology
			Shipbuilding and ship repair	Healthy environment; Advances in technology; Enhance efficiency of harvesting the European energy resources.	Blue technology
European	LeaderSHIP2020 Strategy	Employment and skills; Improving market access and fair market conditions; Access to finance; Research, development and innovation.	Shipbuilding and ship repair	Increase the growth potential of activities; Advances in technology; High added value specialised products.	Blue technology
Regional Southeast Romania	Romanian Southeast Region Development Master Plan 2010-2020	Value adding economic activities support and tourism development; Improvement of the accessibility, mobility and connectivity in the region; Improving the energy efficiency use of the resources and develop the renewable resources potential; Modernising the agriculture and fishery activities, diversifying the non-agricultural activities by using the natural and cultural diversity; Increasing the occupancy rate of the work force; Increasing the participation rate to educational processes including lifelong learning;	Short-sea shipping	Reduce the European greenhouse gas emissions,; Diversification of coastal communities activities; Increase the growth potential of activities.	Blue technology
			Inland waterway transport	Reduce the European greenhouse gas emissions; Diversification of coastal communities activities; Increase the attractiveness of coastal areas; Advances in technology; Increase the growth potential of activities.	Blue technology
			Shipbuilding and ship	Advances in technology;	Blue technology

Level	Strategies	Objectives	Most relevant and promising marine and maritime activities	Links to BG Objectives	
		Increasing social inclusion by better quality of social and health services; Sustainable capitalisation of the natural patrimony by environmental protection and risk prevention measures; Increasing the competitiveness and the attractiveness of the urban areas; Increasing the administrative capacity.	repair	Increase the growth potential of activities.	
			Water projects	Increase the attractiveness of coastal areas; Advances in technology; Increase the growth potential of activities.	Blue technology
			Coastal tourism	Diversification of coastal communities activities; Increase the attractiveness of coastal areas; Increase the growth potential of activities.	Maritime, coastal and cruise tourism
			Offshore oil and gas	Enhance efficiency of harvesting the European energy resources; Advances in technology; Increase the growth potential of activities.	Blue technology
South East Europe	The South East Europe Programme	Fostering innovation, entrepreneurship, the knowledge economy and to enhance integration and economic relations in the cooperation area; Override the constraints imposed by national barriers; To foresee future environmental threats and opportunities and to develop common transnational action for the protection of nature and human; To promote physical and virtual accessibility to the programme area to take different forms of preventive measures and development factors, showing a specific cross-sectoral character strongly interlinking economic, environmental, social and governance issues in sustainable urban and regional settlement development.	Short-sea shipping	Reduce the European greenhouse gas emissions; Healthy environment; Increase the attractiveness of coastal areas; Increase the growth potential of activities; Advances in technology.	Blue technology
			Shipbuilding and ship repair	Reduce the European greenhouse gas emissions; Healthy environment; Increase the attractiveness of coastal areas; Increase the growth potential of activities; Advances in technology.	Blue technology
			Coastal tourism	Reduce the European greenhouse gas emissions; Healthy environment; Increase the attractiveness of coastal areas; Increase the growth potential of activities.	Maritime, coastal and cruise tourism
			Offshore oil and gas	Reduce the European greenhouse gas emissions; Healthy environment; Increase the attractiveness of coastal areas; Increase the growth potential of activities; Advances in technology.	Blue technology
			Inland waterway transport	Reduce the European greenhouse gas emissions; Healthy environment; Increase the attractiveness of coastal areas; Increase the growth potential of activities;; Advances in technology.	Blue technology
			Water projects	Reduce the European greenhouse gas emissions; Healthy environment; Increase the attractiveness of coastal areas; Increase the growth potential of activities;; Advances in technology.	Blue technology
National	Intermodal Transport Strategy 2020	Modernising or building of intermodal terminals and related infrastructure; High quality intermodal services; Implementing of multimodal transport systems for tracking, planning and management, using intelligent transport systems;	Inland waterway transport	Reduce the European greenhouse gas emissions; Increase the attractiveness of coastal areas; Increase the growth potential of activities; Advances in technology; Security of supply.	Blue technology

Level	Strategies	Objectives	Most relevant and promising marine and maritime activities	Links to BG Objectives	
		Stimulating the promotion of multimodal transport.	Short-sea shipping	Reduce the European greenhouse gas emissions; Increase the attractiveness of coastal areas; Increase the growth potential of activities; Advances in technology; Security of supply.	Blue technology
			Shipbuilding and ship repair	Reduce the European greenhouse gas emissions; Increase the attractiveness of coastal areas; Increase the growth potential of activities; Advances in technology; Security of supply.	Blue technology
			Water projects	Reduce the European greenhouse gas emissions; Increase the attractiveness of coastal areas; Increase the growth potential of activities; Advances in technology; Security of supply.	Blue technology
National	National Strategic Plan for Fisheries 2007–2013 (axis 4)	To develop the competitiveness and the sustainability of the primary fishery sector; To develop the market for products of the fishery sector; To support the sustainable development of fishery areas and to improve the quality of life in those areas; To support adequate delivery of the OP in the framework of the CFP.	Coastal tourism	Diversification of coastal communities activities; Healthy environment; Increase the growth potential of activities; Increase the attractiveness of coastal areas.	Maritime, coastal and cruise tourism
National	Romania Energy Strategy 2007–2020	increasing the safety of energy supply and limiting the import of energy; increasing the level of adequacy of the transport networks; Increasing the energy efficiency; Promotion of the renewable energy; Promotion of the high efficiency co-generation, reducing the environmental negative effects; Developing the competition on energy market.	Offshore oil and gas	Reduce the European greenhouse gas emissions; Healthy environment; Increase the attractiveness of coastal areas; Increase the growth potential of activities; Advances in technology.	Marine and mineral resources, Blue technology

Table 17 - Policies/interventions towards most promising marine and maritime activities and the Smart Specialisation Strategies¹⁴

Strategies	Objectives	Most relevant and promising marine and maritime activities	Links to Smart Specialisation Strategies
National Strategy for a Sustainable Transport 2007-2013, 2020, 2030	Update and develop the transport network with European and National relevance, increasing services and services quality; Liberalize the transport internal market; Stimulate the economic development and competitiveness; Reinforce the social and territorial cohesion at national and regional level; Compatibility with the environment.	Water projects	Research infrastructure; Centres of competence, science parks; Green growth
		Coastal tourism	Cultural and creative industries; Internationalisation; Green growth.
		Short-sea shipping	Clusters; Internationalisation.
		Shipbuilding and ship repair	Clusters; Internationalisation; Universities -enterprise cooperation; Research infrastructure; Centres of competence, science parks.
		Inland waterway transport	Green growth; Clusters; Key enabling technologies.
National Sustainable Development Strategy 2013, 2020, 2030	Environmental protection through measures that make it possible to decouple economic growth from negative environmental impacts; Social equity and cohesion through observance of fundamental human rights, cultural diversity, gender equality and combating discrimination of any kind; Economic prosperity through the promotion of knowledge, innovation and competitiveness with an aim to ensure high living standards and full and high-quality employment; Meeting EU's international responsibilities through the promotion of democratic institutions in the interest of peace, security, freedom and of the principles and practice of sustainable development throughout the world.	Water projects	Green growth; Key enabling technologies.
		Coastal tourism	Green growth; Cultural and creative industries; Internationalisation
		Short-sea shipping	Green growth; Key enabling technologies.
		Offshore gas and oil	Green growth; Key enabling technologies.
		Shipbuilding and ship repair	Green growth; Key enabling technologies.
The Strategic Concept of Spatial Development – Romania 2030	Connecting Romania to the European network of spatial development poles and corridors; Structuring and developing the network of urban localities; Asserting the urban-rural solidarity, appropriate with the categories of territories; Consolidating and developing the network of inter-regional connections; Valorising the natural and cultural heritage.	Inland waterway transport	Green growth; Key enabling technologies.
		Offshore gas and oil	Key enabling technologies; Internationalisation; Research infrastructure; Centres of competence, science parks.
		Coastal tourism	Cultural and creative industries; Internationalisation; Green growth.
		Short-sea shipping	----
		Inland waterway Transport	University–enterprise cooperation.
National Strategy on Biological Diversity Conservation	Development of legal and institutional framework; Achieving the coherence and the management efficiency of the national protected areas network; Achieving a favourable conservation status for protected species; Sustainable use of the biodiversity components; Ex-situ conservation; Non indigenous species control; Access to genetic resources and fair sharing of the benefits generated by their use; Supporting and promoting the traditional knowledge, practices and innovations; Research development and promoting technological transfer; Public communication, education and awareness.	Shipbuilding and ship repair	----
		Water projects	University–enterprise cooperation.
		Coastal tourism	Cultural and creative industries; Internationalisation; Green growth.
		Inland waterway transport	University–enterprise cooperation; Green growth.
		Offshore gas and oil	University–enterprise cooperation; Green growth.
Master plan for Protection and Rehabilitation	Development of a programme and of the subsequent measures for coastal area protection in order to rehabilitate the shoreline and to protect the adjacent land and land or marine ecosystems;	Water projects	University–enterprise cooperation; Green growth.
		Offshore gas and oil	University–enterprise cooperation; Research infrastructure; enters of competence, science parks.
		Inland waterway transport	University–enterprise cooperation; Research infrastructure; Centres of

¹⁴ Smart Specialisation Strategies (S3) used for this logical analysis have been defined on the basis of the S3 horizontal approaches (or RIS horizontal priorities), as defined in the Guide to Research and Innovation Strategies for Smart Specialisation, available at http://s3platform.jrc.ec.europa.eu/en/c/document_library/get_file?uuid=e50397e3-f2b1-4086-8608-7b86e69e8553. See the Country fiche guide for more details at <http://www.cogeaipa.it/blue-growth-study/country-fiches/?lang=en>

Strategies	Objectives	Most relevant and promising marine and maritime activities	Links to Smart Specialisation Strategies
of Costal Area	Protect the economic and social infrastructure endangered by coastal erosion; Implementing an integrated monitoring programme for coastal area in order to support the maintenance operation on average and long term.		competence, science parks; Internationalisation.
		Water projects	University–enterprise cooperation; Research infrastructure; Centres of competence, science parks; Internationalisation.
		Coastal tourism	Internationalisation; Green growth.
		Shipbuilding and ship repair	University–enterprise cooperation; Research infrastructure; Centres of competence, science parks; Internationalisation.
		Short-sea shipping	University–enterprise cooperation.
Tourism Development Master Plan 2007 -2026	Emphasising the touristic areas with high and very high potential and setting the required infrastructure in order to increase their value and to facilitate the access for promoting sustainable and high quality tourism.	Coastal tourism	Cultural and creative industries; Internationalisation; Green growth.
		Short-sea shipping	Research infrastructure; Centres of competence, science parks; Green growth.
		Inland waterway transport	Research infrastructure; Centres of competence, science parks; Green growth.
		Water projects	Research infrastructure; Centres of competence, science parks; Green growth.
		Shipbuilding and ship repair	Research infrastructure; Centres of competence, science parks; Green growth.
Danube Strategy	Connecting the Danube Region; Protecting the Environment in the Danube Region; Building Prosperity in the Danube Region; Strengthening the Danube Region.	Offshore gas and oil	Research infrastructure; Centres of competence, science parks; Green growth; Internationalisation.
		Short-sea shipping	Research infrastructure; Centres of competence, science parks; Green growth; Internationalisation.
		Coastal tourism	Cultural and creative industries; Internationalisation; Green growth.
		Inland waterway transport	Research infrastructure; Centres of competence, science parks; Green growth; Internationalisation.
		Water projects	Research infrastructure; Centres of competence, science parks; Green growth; Internationalisation.
		Shipbuilding and ship repair	Research infrastructure; Centres of competence, science parks; Green growth; Internationalisation.
LeaderSHIP2020 Strategy	Employment and skills; Improving market access and fair market conditions; Access to finance; Research, development and innovation.	Shipbuilding and ship repair	Innovation friendly businesses environment for SMEs; Financial engineering instruments; Internationalisation; Green growth.
Romanian South East Region Development Master Plan 2010-2020	Value adding economic activities support and tourism developmentImprovement of the accessibility, mobility and connectivity in the regionImproving the energy efficiency use of the resources and develop the renewable resources potential; Modernising the agriculture and fishery activities, diversifying the non-agricultural activities by using the natural and cultural diversityIncreasing the occupancy rate of the work forceIncreasing the participation rate to educational processes including long life learningIncreasing social inclusion by better quality of social and health services; Sustainable capitalisation of the natural patrimony by environmental protection and risk prevention measures; Increasing the competitiveness and the attractiveness of the urban areasIncreasing the administrative capacity.	Short-sea shipping	Universities -enterprise cooperation; Social innovation; Innovation-friendly businesses environment for SME; Green growth.
		Inland waterway transport	University–enterprise cooperation; Social innovation; Innovation-friendly businesses environment for SMEs; Green growth
		Shipbuilding and ship repair	Financial engineering instruments; Innovation-friendly businesses environment for SMEs; Social innovation; Green growth.
		Water projects	University–enterprise cooperation; Green growth.
		Coastal tourism	Cultural and creative industries; Internationalisation; Green growth.
		Offshore oil&gas	University–enterprise cooperation; Key enabling technologies; Research infrastructure; Centres of competence, science parks.
The South East Europe Programme	Fostering innovation, entrepreneurship, the knowledge economy and to enhance integration and economic relations in the cooperation area override the constraints imposed by national barriers;	Short-sea shipping	University–enterprise cooperation; Green growth; Research infrastructure; Centres of competence, science parks; Internationalisation; Clusters.
		Shipbuilding and ship repair	University–enterprise cooperation; Green growth; Research infrastructure;

Strategies	Objectives	Most relevant and promising marine and maritime activities	Links to Smart Specialisation Strategies
	To foresee future environmental threats and opportunities and to develop common transnational action for the protection of nature and humans to promote physical and virtual accessibility to the programme area to take different forms of preventive measures and development factors, showing a specific cross-sectoral character strongly interlinking economic, environmental, social and governance issues in sustainable urban and regional settlement development.		Centres of competence, science parks; Internationalisation; Clusters.
		Coastal tourism	Cultural and creative industries; Internationalisation; Green growth; Clusters.
		Offshore oil and gas	University–enterprise cooperation; Green growth; Research infrastructure; Centres of competence; Science parks; Internationalisation.
		Inland waterway transport	University–enterprise cooperation; Green growth; Research infrastructure; Centres of competence, science parks; Internationalisation; Clusters.
		Water projects	University–enterprise cooperation; Green growth; Research infrastructure; Centers of competence, science parks; Internationalisation; Clusters.
Intermodal Transport Strategy 2020	Modernising or building of intermodal terminals and related infrastructure; High quality intermodal services; Implementing of multimodal transport systems for tracking, planning and management, using intelligent transport systems; Stimulating the promotion of multimodal transport.	Inland waterway transport	Green growth; Clusters; Key enabling technologies.
		Short-sea shipping	Green growth; Clusters; Key enabling technologies.
		Shipbuilding and ship repair	Green growth; Clusters; Key enabling technologies.
		Water projects	Green growth; Clusters; Key enabling technologies; University–enterprise cooperation.
National Strategic Plan for Fisheries 2007–2013 (axis 4)	To develop the competitiveness and the sustainability of the primary fishery sector; To develop the market for products of the fishery sector; To support the sustainable development of fishery areas and to improve the quality of life in those areas; To support adequate delivery of the OP in the framework of the CF.	Coastal tourism	Cultural and creative industries; Internationalisation; Green growth; Financial engineering instruments.
Romania Energetic Strategy 2007–2020	increasing the safety of energy supply and limiting the import of energy; increasing the level of adequacy of the transport networks; increasing the energy efficiency; Promotion of the renewable energy; Promotion of the high efficiency co-generation, reducing the environmental negative effects,; Developing the competition on energy market.	Offshore oil and gas	University–enterprise cooperation; Key enabling technologies; Research infrastructure; Centres of competence, science parks.

Sources and references

This Country fiche has been compiled according to a common methodology adopted in the framework of this Study and more specifically in Task 2.

A “Country fiche Guide” and a detailed methodology (“*Methodology for identifying and estimating Maritime Economic Activities using NACE and other data*”) are available at <http://www.cogeaspa.it/blue-growth-study/country-fiches/?lang=en>

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