

No.: 1491 /RP/ 28. 05. 2012

Ref: EIA procedure for the project Protection and Rehabilitation Measures for the Southern Part of the Romanian Black Sea Coast in the area of Mamaia South, Tomis North, Tomis Centre and Eforie North

Romyreno ha 07.06.2012r.

Dear Ms. Karadjova,

According to Article 3 of the Espoo Convention we forward to Republic of Bulgaria the notification form for the project *Protection and Rehabilitation Measures for the Southern Part of the Romanian Black Sea Coast in the area of Mamaia South, Tomis North, Tomis Centre and Eforie North* as you requested by the letter no.99-00-81/3.04.2012.

The notification form is accompanied by maps for the five locations involved and the Technical Memoire of this project which is a presentation of the technical characteristics of the project and of the likely impacts. For Bulgaria we do not predict any impact due to the distance to the Bulgarian border and the existing morphology of the shore (Cape Tuzla and Mangalia Port are barriers against particle transportation).

We would also like to mention that Republic of Bulgaria has also participated to the transboundary SEA procedure for the Masterplan " Protection and Rehabilitation of the Romanian Coastal Zone" of which the above mentioned project is part.

We take this opportunity to inform you that the Bulgarian response to the notification is expected until June 25th, 2012.

Please accept, dear minister, the assurance of my highest consideration and esteem.

Yours sincerely,

Rovana PL/OMB

Ms. Nona KARADJOVA Minister Ministry of Environment and Water, Republic of Bulgaria

NOTIFICATION TO AN AFFECTED PARTY OF A PROPOSED ACTIVITY UNDER ARTICLE 3 OF THE CONVENTION

Romanian project "Protection and Rehabilitation of the Southern Romanian Black Sea Coast in Constanta and Eforie North Area"

1. INFORMATION ON THE PRO	POSED ACTIVITY
(i) Information on the nature of	the proposed activity
Type of activity proposed:	In order to protect the shoreline for all five locations, the following types
	Rehabilitation of the existing offshore breakwaters parallel with the
	shore;
	 Construction of new submerged offshore breakwaters, parallel with the shore;
	 Construction of long rubble mound groynes to retain beach recharge;
	 Demolition of four existing groynes;
	Construction of buried geo-synthetic groynes;
	Extension of the existing breakwaters; Beach recharge
Is the proposed activity listed in	No
Appendix I to the Convention?	
Scope of proposed activity	Mamaia South
activities requiring assessment)	Rehabilitation of two existing offshore breakwaters parallel with the shore each 250m long (MM2 and MM2)
	 Construction of a 200m long rubble mound growne to retain beach
	recharge (RJ-1).
	Construction of three buried geo-synthetic groynes, each 70m long.
	Construction of three buried geo-synthetic groynes, each 100m long.
	• Beach recharge along approximately 1.2km shoreline, to provide a 100m wide berm at +2.3m elevation.
	Tomis North
	 Rehabilitation of the existing T7 outfall/ groyne and rehabilitation and extension of existing T9 breakwater at northern end, 415m. Extension of the existing T8 breakwater by 270m
	• Extension of the existing T6-2 breakwater by 290m.
	• Construction of a new 260m long submerged breakwater, parallel with the shore.
	• Construction of three buried geo-synthetic groynes, each 70m long.
	• Beach recharge across approximately 1.05km of the shoreline to create a berm 60m wide at elevation +2.2m.
	I omis Center
	 Rehabilitation of part of T5 groyne/ breakwater and extension by 340m.
	 Construction of a new 245m long submerged offshore breakwater, parallel with the shore.
	Construction of two buried geo-synthetic groynes, each 70m long.
	• Beach recharge along approximately 0.85km of the shore to provide a 60m berm at elevation +2.2m.
	Tomis South
	• Partial rehabilitation and extension of the existing T4 groyne by 350m.
	Rehabilitation of the existing T1 groyne along 100m length.
	with the shore, 260m and 245m long
	 One buried geo-synthetic groyne 70m long.

	Beach recha berm at +2.2	arge along 1.47km of 2m elevation.	the shore to provide	a 60m wide
	Eforie North			
	Rehabilitatio	n and extension of th	e existing J1 groyne.	
	Rehabilitatio	n of the existing J2 g	royne.	
	Demolition o	of three submersed	S.	(0
	 Construction long and 1nd 	275m long)	onshore breakwaters	s (2no. 200m
	Beach recha	irae alona approxima	tely 1.2km of the sho	re to provide
Scale of proposed estivity	a 100m wide	berm at +2.2m eleva	ation.	
(e.g. size production capacity etc.)	Location	Length of	Extension of	
		(km)	beach surface	
	Mamaia South	1.2	82	-
	Tomis North	2,3	12.0	-
	Tomis Centre	0,9	3,8	
	Tomis South	1,5	3,0	
	Eforie North	1,4	6,3	
	Total	7,3	33,30	
Dependention of energy of the literature	Target (2015)	10	30	
(e.g. technology used):	The purpose of the	ne proposed activity i	s to:	6
(c.g. technology used).	reduce coas Black Sea (cal erosion in the m	ost exposed at risk a	areas of the
	non-structura	al prevention measur	es for the protection	of 7.3 km of
	beach and fo	or the extension of th	e beach surface with	33.30 ha till
	2015;			,
	 protect the a 	sset value and		
	increase the	safety of homes and	residents in this area	1
	In order to achiev	ve all the above, the	re are mandatory reh	abilitation of
	the existing structure	uctures and beach	ew structures, demoi	h recharge)
	activities included		nounsiment (beac	n recharge)
Description of purpose of proposed activity:				
Rationale for proposed activity (e.g.	The area of prior	itised works has beer	n extensively develop	ed for ports,
socio-economic, physical geographic	housing, industry	, and tourism and ma	any of these assets a	re subject to
Dasis)	or are at future	risk from erosion.	The beaches in this	area are a
	erosion is likely t	attraction, and the loss of	oss of sand and cont	inued beach
	the erosion of ur	ban settlements and	industrial areas in th	e hinterland
	of the deterioratir	ng defences.		
	A computer sime	ulation predicts the	loss of more than 7	70 m of the
	beach over the n	ext 20 years, which v	vould lead to the clos	ure of many
	hotels near the	shore (Japanese Inte	ernational Cooperation	on Agency -
	Southern Roman	ine Study on Prote	iction and Renabilita	ation of the
	Without impleme	intation of coastal n	notection works the	heaches in
	Constanta Coun	ty will continue to	become narrow, w	ith potential
	negative impacts	on the local tourist	economy. It is con	sidered that
	appropriately des	signed beach protect	ion can maintain or	expand the
	Deach area and r	etain its economic va	lue.	foot at and
	along the Black	Sea coast are in	nu reverments at the	IDUL OF CITTS
	ineffective due to	wave attack. It is co	insidered that resider	ntial housing
	on the top of the	se cliffs (e.g. on the i	north-eastern shore c	of Constanta
	City and the cliffs	at Eforie Nord) are	threatened by cliff in	stability and
	potential loss. Co	ontinued erosion or fa	ailure of the cliff unde	r high water
	pressure conditi	ons may occur if	no cliff protection	works are
· · · · · · · · · · · · · · · · · · ·	beaches in from	t of cliffs will siani	ficantly reduce the	risk of cliff

	instability due to coastal erosion and protect local residents from the threat of cliff collapse.
Additional information/comments	
(ii) Information on the spatial an	d temporal boundaries of the proposed activity
Location:	
Description of the location	Constanta County - Constanta Municipality:
(e.g. physical-geographic, socio- economic characteristics);	Mamaia South– northern limit Hotel Sulina to southern limit Hotel Parc.
	 Tomis North - northern limit Pescarie to southern limit Hotel Unirii. Tomis Centre - northern limit Hotel Unirii to southern limit str Renasterii. Tomis South - northern limit str Renasterii to southern limit Hotel Palas
	 Constanta County – Eforie Municipality: Eforie Nord – northern limit Eforie Town to "Yacht Club Ana" (Port Belona) marina area.
Rationale for location of proposed activity (e.g. socio-economic, physical- geographic basis): Time-frame for proposed activity (e.g.: start and duration of construction and operation)	Deformal matrice area.Through a multi-criteria assessment of the options and appraisal factors from the environmental, social and economic pillars of sustainable development, the Master Plan identified an initial phase of five priority projects involving works to improve coastal protection in the following areas, all within Constanta County; Mamaia South, Tomis North, Tomis Centre, Tomis South and Eforie North.Within the Master Plan, recommended intervention options were selected for each site which aimed to protect and improve the quality of the environment and standard of living for local residents, communities and tourists. Improvement was determined to be through an increase in public safety (particularly where the defences are in poor condition and much of the coastline is experiencing the impacts of erosion), improved quality of construction materials and workmanship, improved accessibility and better long-term maintenance provision.Construction phase / contract (Including Defect Liability Period of 12 months): as follows:01/02/2013 02/03/2015Implement ation of the Tomis area (Tomis 01/02/2013 01/02/2013 01/02/2013 01/02/2013 01/02/201302/03/2015
	Works North, Tomis Centre, Tomis South) WC-01 Y: Eforie North area 01/02/2013 02/03/2015 Implementation of Service contract S- 01W 02/10/2012 31/08/2015 [TA for Project Management , Publicity for the project. Works Vorks
	Supervision] Implementation of Service contract S- 02W 02/08/2013 30/09/2015 [Annual audit of the project] 30/09/2015 NA
Maps and other pictorial documents connected with the information on the proposed activity	Attached – General layouts for the proposed works
Additional information/comments	
(iii) Information on expected env	/ironmental impacts and proposed mitigation measures

Scope of assessment (e.g. consideration of: cumulative impacts, sustainable development issues, impact of peripheral activities, etc.):	The purpose of environmental impact assessment was to estimate potential impacts of implementing the proposed works on the environment. The impact was assessed both during construction, and the impact generated during the operation, after construction. The impact was analyzed both in the location of the works, and in adjacent areas and especially in protected areas, aiming the cumulative and residual impacts after implementation of mitigation measures proposed in environmental studies.
Expected environmental impacts of proposed activity (e.g. types, locations, magnitudes):	 Water A local potential negative impact on marine water quality could be related to the characteristics of the sand and other quarried rocks used for works. The proposed measures for coastal erosion protection will involve some morphological changes within breakwaters and groynes and thus impacting on the local coastal water-bodies. The proposed works are aimed at dissipating wave energy in the shell area between the coastline and water depths of 5-6m, as well as reducing energy of alongshore currents. The role of the works will differ by sectors. In Mamaia area, the beach protection will be provided in combination with beach recharge works, whereas further south, they will be for both cliff protection and improving shell habitats (as main contributors with organogenic sediments to the local beaches). As cliff erosion contributes to organic and fine material on the beach to the shell habitats. To these purposes, the proposed measures will have minor to moderate beneficial impacts. Possible minor negative impacts (local impacts/low sensitivity of potentially moderate negative magnitude) may be experienced through current perturbation, for a lower pollutant dynamics during some periods within the protected nature conservation areas. The effect on water quality within the Black Sea will be confined to minor adverse (low sensitivity and moderate negative magnitude) temporary increases in local levels of suspended sediment or turbidity originating from excavations to put in place rock structures and from the deposition of beach recharge material. These changes have the potential to affect both the quality and aesthetic appearance of the water for recreational users e.g. swimmers and for biodiversity. No significant impacts on rivers or lakes are envisaged during the construction works. However, all storage areas for fuel, oil, chemicals and other potential for local impacts on marine water quality during the construction materials into the water

into groundwater. In addition, refuelling of vehicles and equipment on-site are potential sources of surface water and groundwater pollution.
The nature and severity of adverse impacts associated with accidental spillages is difficult to assess. The methods for
transportation of materials (e.g. by road and/or sea) is unknown at this stage and will be dependent on the contractor. However, any
pollution or deterioration in water quality is likely to have an associated impact upon wildlife (e.g. smothering of habitats)
landscape (e.g. presence of unsightly substances such as oil slicks) and the local community (e.g. presence of potentially
hazardous substances).
the construction of new or extended rock structures has the
potential to expose and release sediments with levels of polyaromatic hydrocarbons (PAH). The impact of this sediment
disturbance as a direct result of the scheme is considered not significant impact.
 Impact on water from dredging area If the sand will be dredged from Depute river, it is not estimated a
significant growth and long term of the turbidity due to the type of the sand which has no important content of silt and clay
Because no information about the construction works are
available, it cannot be estimated the impact generated by the wastewaters from this activity. This estimation will be made during
the procedure followed by the Contractor in order to obtain the necessary permit.
• There are unlikely to be any operational impacts on water
impact.
Impact on air quality
• During the renabilitation works, localized elevated vehicle emissions may be caused by increased vehicle movements from
construction works (beach recharge, jetty extensions, breakwater
 structures, rehabilitation etc.) and equipment operation. The construction works may also temporarily increase dust
emissions during the movement of sand and sand deposition. The levels will vary dependent on the intensity of the works, periods of
prolonged dry weather and wind conditions.
• These impacts are considered minor adverse (i.e. low value as
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 These impacts are considered minor adverse (i.e. low value as impacts of local importance and minor negative magnitude as impact would be on a small area). During the operation of the scheme, there will be no significant impacts on air pollution or on air quality. A potential impact could be generated during the maintenance of the new structures works, but this kind of works will be necessary only after a long period of time after the new structure finalizing and will have a local and insignificant impact. Soils and geology During works execution, existing beach sediment will be compacted, as a result of execution and uses of exploitation roads and traffic equipment. These phenomena will be temporary, only during the works period and will be rectified after their completion through road decommissioning and restoration of affected areas. In normal conditions there would be no significant impact on sediment in the analyzed sectors. A potential impact on sediment quality will be generated only in case of accidents such as fuel spills or of using

 unclean sand for recharging. Correct site management and use of bunding and spill management methods would minimize any effects, so it can be considered that the potential impact on sediments will be negligible, taking into account the fact that in such situation the amounts of fuel that can spill will not be large. After completion of the project, the sediment size of imported sediment will be optimized, the stability of sediments in this area will increase, so the potential impact on sediment is broadly minor beneficial.
Noise and vibration
 During construction, which will take place predominantly outside of the summer tourist season, temporary localized increases in noise from site machines and equipment (including increased vehicle movements associated with the transport of materials and personnel to and from the sites) are likely to be experienced. Consequently, there is potential for minor adverse impacts (i.e. low value as impacts of local importance and minor negative magnitude as noise impacts would be on a small area) on local residents, workers and recreational users in and around the areas
of proposed works. Particularly noisy operations would include the use of bulldozers and excavators, during the reshaping of sand material following any pumping ashore. If night working is required, there is potential for greater disturbance, particularly under calm or gentle onshore wind conditions. This is because at night, atmospheric conditions are typically stable and thus tends to transmit noise over greater distances, background noise is at a minimum, and human sensitivity is greatest
Some plant would be required on the foreshore and would be audible from residential properties and tourist accommodation (e.g. hotels), particularly those situated on the coastal frontage on or overlooking the beach.
Transportation by heavy good vehicles to recharge beaches, and supply stones and concrete blocks to the areas of proposed works can cause localized vibration, which has the potential to affect local communities in close proximity to the works. These potentially minor adverse impacts will be temporary in nature. The areas most likely to be affected by temporary elevated noise levels during construction are Tomis North, Tomis South, Tomis Central, as these areas are located at smaller distances from residential areas.
 Transportation by heavy good vehicles to recharge beaches, and supply stones and concrete blocks to the areas of proposed works can cause localized vibration, which has the potential to affect communities in close proximity to the works. These potentially minor adverse impacts will be temporary in nature. Even if the duration of construction activities is estimated to about 2 years, the period of time when the potential negative impact generated by noise is expected, for each area, it is estimated to be the period when the main important works will be performed. The type of works that will generate noise due to the equipment working are:
 sand recharging; buried groins construction:
 demolition of the existing dikes (only for Eforie North); construction/rehabilitation/extension of jetties. It should be noticed that the rehabilitation of the detached breakwaters works will be placed offshore and will not be a potential source of noise.

for the population. The noise generated by this type of work could generate a temporary impact on the marine species (e.g. fishes, dolphins) that will leave the area during the work period. After, they will repopulate these area. An estimation of the period when the temporary elevated noise level could be envisaged for each location are presented below, according to the timing of execution works. It should be noticed that the elevated noise level will not be generated during the all period of time. Mamaia South
 during the first year of works execution, between 15 September – 15 December, and on the second year of works execution between 15 January – 15 May when the groynes execution and the recharging are scheduled. If it will not be possible to carry on the recharge works during this time period, these works will be performed on the second year of works execution between 15 September – 15 December. Tomis North
 during the first year of works execution, between 15 September – 15 December, and on the second year of works execution between 15 January – 15 May when the groynes execution and the recharging are scheduled. If it will not be possible to carry on the recharge works during this time period, these works will be performed on the second year of works execution between 15 September – 15 December. Tomis Centre
 during the first year of works execution, between 15 September – 15 December, and on the second year of works execution between 15 January – 15 May when the groynes execution and the recharging are scheduled. If it will not be possible to carry on the recharge works during this time period, these works will be performed on the second year of works execution between 15 September – 15 December.
 Execution of submerged dikes parallel to the shore start in the first year of execution, throughout its duration; During the first year of works execution, between 15 September – 15 December, and on the second year of works execution between 15 January – 15 May when rehabilitation of existing dikes, extension of T4 jetty and sand recharging will be performed.
 January – 15 May in the first year of execution – during demolition of the existing dike and jetty; During the rehabilitation/extension of the existing jetties and new submerged dikes construction During the sand recharging that will start in October of the first year and will end in the second year in May. No increases in noise and vibration are likely to be experienced during operation of the scheme – no significant impacts.
 Impact on biodiversity Designated Conservation Sites The proposed rehabilitation of detached breakwaters and construction /extension of groynes together with beach recharge in all five areas of proposed works will take place within and adjacent to the Black Sea SPA. There is therefore potential for direct major adverse impacts on birds and their habitats within this designated site, as the receptor has a very high value (internationally important) with a major negative magnitude. Impacts may result from disturbance to or loss of subtidal habitat (feeding grounds) for

 waterbirds offshore and in the footprint of new or extended structures and offshore noise, vibration and visual disturbance to birds during construction of the scheme. Due to existing anthropogenic disturbance on the beach, the presence of industry and general development along the shoreline, there is little potential for significant additional impacts to birds on land due to noise, vibration and visual disturbance during the construction of the scheme – no significant impact. Ground nesting birds may be present in the Tomis sections and therefore there is the potential for any ground nesting birds (designated as part of the SPA) on the beach within these areas to be affected by beach recharge works – potential for major adverse impact, if ground nesting birds are present. In Constanta – Mamaia sector, the effect of the development works on terrestrial habitats is negligible. In Constanta area actually there is not natural habitats on the cliffs; these are covered by strongly anthropic vegetation or are transformed into green area. In the Mamaia North area should be taking into consideration the areas where important vegetal habitats are present and the works should be done by a strict protecting of them. Also, the large scale works scheding will be done out of period of migration and wintering of specific birds, that are resting or feeding on the beach. The beach habitats will be affected only during the works period. After, the organisms associations from supraliticant effects on them. The bottom structure will allow the repopulation of the new recharged area with elements of the fauna located beyond the reacharging area. The dikes, the jetties and the artificial recifs will be populated with the same species existing in rocky area. In the same time, there is the possibilitythat some invasive species. The effects on avifauna will be not significant. The proposed works will be located outside of Lake Techirghiol SPA and Ramsar site, and Lake Siutghiol SPA.
coastal processes at the designated SCIs as the new coastal protection structures will not extend offshore beyond the distance of the existing harbour arm at Eforie. Consequently, the proposed works will have no significant impacts on these sites.
 Habitats The short term works proposed for Eforie North could affect especially the sandy habitats, having a potential negative effects on Donacilla cornea and Donax trunculus; the potential impact could be limited and controlled by mitigation measures. The use of machinery within working areas and along site access tracks (to be determined by the contractor) may result in the loss of or temporary disturbance to ground flora, but no significant impacts are anticipated.
• A wide range of birds utilize the study area, and those identified as using the coastal waters may be adversely impacted by the

 proposed scheme. Noise and vibration impacts from the construction of the proposed development have the potential to disturb birds that may be present within and adjacent to the proposed coastal protection works – minor adverse impact (i.e. low/medium value and moderate negative magnitude). However, the construction works will be temporary in nature and birds are highly mobile and thus are expected to relocate elsewhere (i.e. to more remote areas of the coastline) during periods of disturbance. Due to existing anthropogenic disturbance on the beach, the presence of industry and general development along the shoreline, there is little potential for significant additional impacts to birds on land during the construction of the scheme – no significant impact. During the construction works, there may be temporary disturbance to cetaceans and other large marine animals due to increased levels of noise, vibration and the construction of physical barriers (habitat degradation). However, given the large available area of sea around the proposed coastal protection works, the relatively short time period required for construction and the fact that most marine animals (including cetaceans) display avoidance behaviour when levels of noise and vibration increase well above baseline values, it is envisaged that this will only constitute a minor to moderate adverse impact (i.e. high value receptor and minor negative magnitude as impacts would only be on a small area).
 There may be some effects on marine ecology from the release of sediment into the water column during beach recharge. Beach recharge could change the sediment characteristics along the coast and possibly change the invertebrate communities, which could have indirect effects on bird and fish populations. There may therefore be a minor adverse impact on invertebrate populations (low value receptor and minor negative magnitude) by temporarily displacing them along the shore, with associated impacts on other marine ecology.
 The new rock groyne sections and new/extended structures would provide an additional substrate for encrusting organisms to colonies. As the habitat diversity of the shore would increase, there is likely to be a minor beneficial impact (low value receptor and minor positive magnitude). In case of an inappropriate management during the construction period, the beach near the work site could be destroyed and the coastal area could be affected because of the inappropriate materials and wastes storage, of sand excavation on the beach and of a uncontrolled wastewater discharge on the land. A substantial fuel discharge from the fuel storage could induce important effects on benthos, dolphins, birds and could induce an important indirect effect on communities for which the incomes are directly link to the tourism and fishering.
 Designated Conservation Sites It is possible that the construction of new or extended structures may affect the nesting behavior of designated Annex 1 birds within the Black Sea SPA by interfering with lines of sight on which birds rely to detect approaching predators and potential for a small reduction in nesting habitat as a result of the wider footprint of new structures.
However, it is considered that these potentially adverse impacts will be more than offset by the improved habitat resulting from higher beach levels along parts of the frontage. The suitability of nesting habitat for some ground nesting birds within the SPA (e.g. Little terns) is largely determined by its elevation (which determines the likelihood of tidal inundation

during the nesting period). The raising of beach levels may attract ground nesting birds and minimize the potential for inundation of any existing nests that may be present, thus proving beneficial and providing a greater opportunity for breeding success. The operational impact of the coastal protection works is therefore considered to be a moderate beneficial impact (i.e. very high value internationally important receptor and minor positive magnitude). Additional, a positive impact could occur, in some period of time, the new construction being sheltering habitats for fish fauna which normally represents food for dolphins.
 Impact on fisheries Designated Shellfisheries Turbidity. The proposed works falls within two zones designated as shellfish growing waters for mussels, clams and whelks. Localized changes to water quality as a result of elevated turbidity levels and changes in suspended and/or deposited sediment within these designated areas have the potential for minor adverse impacts on the EC Shellfish Waters. Beach recharge will temporarily increase suspended sediments in the water column. Moderate increases in suspended sediment that is high in organic carbon may provide additional food for filter feeding shellfish, but there is also the risk of smothering close to the works areas. If the disturbed sediments are close to sources of pathogenic bacteria (eg sewage discharges) the suitability of the shellfish for human consumption could be affected. This would constitute a minor to
 moderate adverse impacts (very high value and minor negative magnitude) on designated shellfisheries. If sediments are likely to be contaminated by sewage, it is recommended that the shellfish tissue is assessed frequently for pathogenic bacteria during periods of sediment disturbance. Changes to the suitability of the shellfish for human consumption would constitute a major adverse effect on the shellfishery. Direct physical disturbance. There is potential for direct physical disturbance (e.g. abrasion of shells) or loss to shellfish within the footprint of the proposed coastal defense structures, which is likely to have a minor to moderate adverse impact (medium to high value and moderate negative magnitude). It should be noted however that given the small scale and temporary nature of the construction works itself, this will only affect a very small proportion of the overall population within the Black Sea
 Recharge is unlikely to settle in these areas. Noise. Noise associated with construction of the proposed scheme is unlikely to adversely impact upon shellfish such as mussels and clams during the construction works. In addition, the time scale of the increased noise levels is short - no significant impact. Commercial fisheries Disturbance. There will be some disturbance to fish during construction. The placement of new structures may disrupt the
behaviour of spawning fish. The construction of new coastal protection structures may also disrupt the sediments associated with any spawning, nursery and over wintering grounds that may be present within the areas of proposed works and migration routes for various species. The proposed structures have the potential to have a minor to moderate adverse impact (low to medium value, depending on the presence of spawning or nursery grounds and minor to moderate negative magnitude) on marine ecology and may result in the temporary displacement of some fish and invertebrates during the construction works. Most fish however are typically highly mobile and can be expected to move away from localised areas of disturbance

(e.g. through elevated turbidity and/or higher than normal levels of noise and vibration) whilst the works are constructed. This effect would only be temporary, though fishermen may have to move further afield to find their target species, which could have minor adverse impacts on commercial fishing. Juvenile flatfish may be somewhat more vulnerable to increased mortality as a result of smothering by recharge sediment, which may adversely impact on the population of this species. These impacts are considered to be minor to moderate adverse in nature (if nursery grounds are present) as a result of local minor changes in suspended sediment.

- Habitat removal. The placement of new structures may result in the direct removal of demersal pelagic species and of benthos on which fish feed. Similarly, changes in sediment substrate (and in particular parameters such as particle size, contour, gradients etc) may result in changes to the benthic community. Firstly, and arguably more importantly, changes to sediment substrate are known to potentially affect the ability of some marine organisms (including some species of fish) to spawn. Some fish and shellfish species for example have certain requirements with regard to the type of substrate as well as its contours in order for them to spawn successfully and to their full potential. Similarly, alterations to sediment can also affect the nursery ability of some species. This may have a minor to moderate adverse impact. Secondly, movements by the sediment itself may lead to direct impacts such as smothering of adult and juvenile shellfish and other marine organisms. This may have a minor to moderate adverse impact.
- Pollution incidents. Any pollution spillages have the potential to result in minor to major adverse impacts (i.e. temporary closure of a fishery) on shellfisheries (before mitigation), but the probability to occur is insignificant.

Access to Fishing Grounds by Trawlers and Potters

There could be some temporary interruption to fishing activities, as
a result of the presence of vessels associated with the
construction of the coastal defenses and barges delivering rocks
to the shore. These operations could potentially affect shrimp
habitat, disturbance to or loss of static fishing gear and restrict
access to inshore fishing grounds within the Black Sea. Sand is
likely to be delivered from a barge moored offshore through a
pipeline, which will have minor effects on fixed fishing gear but
could restrict access by trawlers owing to the hazard presented by
the pipeline.

It is difficult to quantify the actual effects on fishing activities of construction works, since the proposed works are temporary in nature and it could be argued that trawlers are free to move to adjacent areas of coastline during the construction period. However, it is expected that this would have minor adverse impacts on fishing activities that are locally important and have a potentially minor negative magnitude due to the impacts occurring over a small area.

No impacts on fisheries are envisaged during the operation of the scheme – no significant impacts.

Impact on landscape and visual amenity Landscape

- During the construction period, minor adverse impacts on local landscape character could occur as a result of the presence of machinery, materials and construction activity (locally important receptor of minor to moderate negative magnitude impacts).
- The impact of the new rock structures on landscape character will be similar to that experienced at present and depend on the degree of coverage of the structures by sediment. As there are existing coastal defence structures present within the areas of

 proposed works and the coastline is already developed, the coastal landscape is likely to be able to accommodate new or modified structures without detrimental impacts on local landscape character – no significant impacts. The beach recharge works are likely to enhance the existing beachscape, creating a more natural landscape – minor beneficial impact.
 Visual Amenity During the construction period, temporary and minor localised adverse impacts on visual amenity for recreational users, residents and visitors could occur as a result of the presence of construction plant, heavy goods vehicles, construction activities and stored materials/site compounds. The location of these facilities will be dependent on the Contractor. The demolition and removal of redundant and deteriorating rock structures in some areas is likely to have a beneficial impact on views of the beach by recreational users, local residents and visitors. Higher beach levels are likely to improve the local aesthetic appearance of the beach, resulting in a minor beneficial impact. Impact on cultural heritage and historic environment There will be no known impacts on submerged or marine archaeological sites within the areas of proposed coastal protection works – no significant impact. In the areas to be rehabilitated in Mamaia South, Eforie North, Tomis North, Tomis Central and Tomis South, archaeological sites or heritage buildings were not identified within or adjacent to the footprint of the construction works, so the rehabilitation works will not adversely impact on cultural patrimony, archaeological or historical monuments - no significant impact. Potentially adverse impacts on any buried archaeological remains may occur if beach levels are stripped lower than previous works during groyne construction/rehabilitation and beach recharge operations. The severity of such an impact if it were to occur, would be dependent on the value of the any archaeological remains identified and could vary from minor adverse (if the remains are of local value only) to moderate to major adverse (if the remains are of local value only) to moderate to major adverse (if the remains are of local value only).
 The principal benefit to cultural heritage and the historic environment would be the protection from erosion of any archaeological and culturally important sites in the hinterland of the proposed coastal protection works – minor beneficial impact.
 Impact on socio-economics Activities relating to the beach recharge and construction of new coastal protection structures would cause temporary minor adverse disruption to recreational users' enjoyment of the area in terms of noise, dust and visual disturbance. Tourists are unlikely to be affected if the works are carried out outside of the main tourist season. The schemes will result in the temporary severance of access to
 the foreshore and sea during the construction works. This would result in temporary minor adverse disruption to recreational users as a result of the loss of a recreational resource. Rock material for the groynes and new breakwaters may be delivered by barge and therefore there is potential disruption to fishermen and maritime recreational users during rock deliveries. This impact is considered in the Fisheries chapter of this report. There will be a local increase in numbers of vehicles involved in

	 the delivery of materials and personnel to site but this will have no significant impact on the overall road network. However use of narrow roads leading to the beaches will require sensitivity to avoid disturbance to other road users. There is the potential for minor adverse damage to local access routes during the construction period. During the project, there will be also minor beneficial impacts on the socio-economic environment as a result of the following: <u>New jobs</u> will be created for local communities during the construction stage where beach rehabilitation works will be carried out, with associated beneficial impacts on local facilities (e.g. accommodation); <u>Construction companies</u> to be involved in the work provided by the project will also benefit; <u>Funds collected</u> by companies will contribute to increase amounts collected by local budgets. The proposed scheme would protect buildings, inland transportation and recreational assets from erosion in the hinterland of the defences. Implementation of the project by recharging the beach areas will augment their tourism potential and potentially increase the number of tourists and visitors to the coastal areas where works are proposed. These impacts are considered minor to moderate beneficial. Romanian and foreign investors may also be attracted to the area as a result of the coastal protection works, encouraging them to invest there e.g. by building residential areas or by tourist accommodation/related facilities such as restaurants etc. Creating more facilities in the tourist resorts will attract a greater number of tourists, and will generate revenue growth for the local economy. These will have indirect beneficial impacts on employment as new hotel structures and related services will create new jobs for local people, at least during the summer – potential minor beneficial impacts on ot take place in accordance with legislation.
Inputs (e.g. raw material, power sources, etc.)	 The key materials to be used for the construction of the coastal protection works include: Sand to recharge the beaches; Quarried rock for construction of groynes and breakwaters; Precast concrete armour units for breakwaters and groynes. Other materials will also be used such as geotextile membranes, and mass concrete for promenades on the breakwaters, but the above items represent the key construction materials.
Outputs (e.g. amounts and types of: discharges in air, discharges into the water system, solid waste)	 <u>Water</u> A potential negative impact on marine water quality could be related to: characteristics of the sand quarried rocks used for works some morphological changes within breakwaters and groynes increases in localised levels of suspended sediment or turbidity originating from excavations to put in place rock structures and from the deposition of beach recharge material. accidental spillages of fuels, oil, or other construction materials into the water column of the Black Sea during the construction of marine structures and beach recharge, and from the transportation of construction materials by sea

 Excavation works and disturbance of the sea bed associated with the construction of new or extended rock structures Heavy traffic specific to the site brings emissions of various pollutants in the atmosphere (nitrite, nitrate, carbon monoxide, sulphides and sulphates – characteristic for diesel fuel, particles in suspension etc.). particles from friction and ageing/wear (from roads and tires); the atmosphere is also washed by rains; therefore the pollutants from the air are transferred to the other environmental elements (surface water and groundwater, soil etc.).
 <u>Air and Climate</u> During the construction period, the main potential sources for air pollution will consist of: Emissions from trucks used for raw material transportation; Sand dredging, respectively equipments working; The works execution (equipment operation, dust from beach recharge activity). During the construction period, the main potential sources for air pollution will consist of: Emissions from trucks used for raw material transportation; Sand dredging, respectively equipment operation, dust from beach recharge activity). During the construction period, the main potential sources for air pollution will consist of: Emissions from trucks used for raw material transportation; Sand dredging, respectively equipments working; The works execution (equipment operation, dust from beach recharge activity). The quantities of air pollutants generated by equipment and trucks depend mainly on: The technology used for engine production; The engine power;
 Fuel consumption; Engine capacity; Engine age. During the period of activity carrying on, the air emission will vary from day to day, depending on the specific performed activity. When the activity is finished, the air pollution sources and pollutants disappear.
Soils and geology Sediment pollution sources During construction, if the proposed rehabilitation / construction works complies with site organization specifications, environmental protection and work safety specifications, no sediment pollution sources will occur. Analysis of sediment samples collected from the Danube, from the proposed perimeters for dredging, has indicated that, in terms of heavy metals and total petroleum hydrocarbons concentrations, they have the same characteristics as the samples of sand from areas where sand nourishment will be performed. Therefore, it is estimated that artificial Danube sand nourishment will have no impact on sediment quality in the analyzed sectors. The only potential sources of pollution may occur in case of accidents, respectively in case of discharge of fuel into the water, where sediments can be reached or in case of improper waste management. During the operation no sediment pollution sources will occur as a result of the performed works.
<u>Noise and vibration</u> During the construction period, the potential sources for noise and vibration generating will be the vehicules used for material transport and for work. Noise from vehicules is the combination of noise produced by: engine,

	 exhaust and tires. Its intensity may increase as a result of: Malfunctioning of the vehicle's parts:
	 Poor road conditions that create difficulties in vehicle's functioning (steep slopes)
	The method used to estimate the noise generated by traffic is the one recommended by 2002/49/EC Directive namely the French national method of calculation "NMPB-Routes-96 (SETRA-CERTU-LCPC-CSTB)" indicated in "Arrete du 5 mai 1995 relatif au bruit des infrastructures routieres, Journal Officiel du 10 mai 1995, Article 6" and French standard XPS 31-133.
	 <u>Biodiversity</u> Main sources of pollution are: heavy traffic; all the equipments used during construction (including quarries, dredges, excavation),
	 <u>Fisheries</u> Main sources of pollution are: heavy traffic; all the offshore equipments used during construction;
	Landscape Presence of machinery, materials and construction activity (locally important receptor of minor to moderate negative magnitude impacts).
	<u>Cultural Heritage and Historic Environment</u> There will be no known impacts on submerged or marine archaeological sites within the areas of proposed coastal protection works.
	 Socio-economics New jobs will be created for local communities during the construction stage where beach rehabilitation works will be carried out, with associated beneficial impacts on local facilities (e.g. accommodation); Construction companies to be involved in the work provided by the
	 project will also benefit; Funds collected by companies will contribute to increase amounts collected by local budgets. For all the above, during the operation period no significant impacts
Transboundary impacts (e.g. types, locations, magnitudes):	on environmental indicators. The modelling together with the past variation of the shoreline and the analysis of the sediment samples lead to identification of the littoral divisions which divide the cost into subunits named sedimentary cells. The proposed coastal protection project will generate effects only inside of the sedimentary cell where the works are proposed to be performed.
	Constanta Port forms a major littoral divide, effectively blocking littoral drift, so there will not be any impact on the Bulgarian coast from schemes north of Constanta Port, including the short-term projects at Mamaia South, Tomis North, Tomis Centre and Tomis South.
	For works proposed between Constanta Port and Tuzla headland, including the short-term project at Eforie North, there is again, no chance of impacts on the Bulgarian coast due to the littoral divides at Cape Tuzla and at Mangalia Port .

Proposed mitigation measures	The environmental impact resulted by completing the rehabilitation
(e.g. if known, mitigation measures to prevent, eliminate, minimize,	works of the five sectors is generated by the construction work. A summary of the proposed mitigation measures is presented as
compensate for environmental effects):	follow:
	Water
	• a strictly control of quality materials is required, in the same time
	with water quality monitoring;
	 to used only clean materials in order to eliminate the negative impact on water quality;
	 It is forbidden to storage the materials or wastes near the beach and cliff area;
	 Good construction management practices and precautionary measures for fuel leakages etc. will be employed to ensure that there are no significant residual impacts;
	• The storage of fuel, equipment and construction materials will be sited on an impervious base away from water, properly bounded and sealed and kept locked when unattended;
	 The maintenance of equipment (e.g. washing, repairing, parts exchange, oil change, fuel supply) will only be carried out in suitable places (e.g. concrete platforms with decanters provided for retaining losses etc.):
	 The relevant codes of practice for construction sites will be implemented, to protect water quality during construction from disturbance of sediment and potential spillage of construction material. This will include adherence to all relevant legislation; In North Eforie area is necessary to perform the works in periods
	 It is recommended that the contractor of the coastal zone works to have a contractual relationship with a company specialized in remediation work, having the technical and human capability to act in the case of accidental loss of oil into water:
	 In case of accidental pollution, it is necessary to have a rapid intervention to remove the severe and mitigate the effected
	 During the work period, the water quality has to be monitored.
	Air
	 Operations such as sand unloading and profiling, which produce dust will be minimised during periods of strong winds;
	 Dampening of soils on access roads to the beach to reduce dust during dry weather:
	 Heavy goods vehicles will be equipped with baffle cloth to cover the sand in order to reduce dust emissions;
	 Preparing a schedule of work for transport, indicating the route, traffic speed and mode of transport;
	 Establishing of the transport routes optimal from distance and sensitive passed through area, in order to minimize the impact generated by the air emission specific to transport;
	 Also, the equipment work schedule will be optimised to ensure that exhaust gas emissions are minimised, so that impacts on air quality are minimal;
	 Maintaining all equipment and vehicles in very good working condition, by periodically revisions and maintenance in workshops; Immediately stopping the equipment functioning in case of malfunction;
	• Monitoring the air quality in the vicinity of work areas, especially in the populated areas.
	Noise and vibration
	contractor's activities (e.g. construction activities should avoid taking place at night);

	• Proper maintenance of equipment and machinery to avoid
	additional noise caused by damaged machines;
	them and eliminate causes of noise.
	 Training of drivers of lorries on noise reduction in traffic (e.g.
	avoiding unjustified horning, maintenance of vehicles, etc.).
	• During the arrangement and construction period, it is
	avoid two or more different works at the same time, as as the
	prevent the cumulating of several noise generating sources:
	 To reduce / limit the adverse effects by strictly enforce the rules of
	work on site (fences absorbing, wetting, performing the activities
	that generate noise between the hours 8.00 - 16.00 etc.).
	Carrying out proposed rehabilitation/construction works in
	accordance with site organisation and environmental and safety
	regulations. In this situation, any potential impact on the sediment will be minimised:
	• Proper maintenance and regular checking of used equipment, to
	eliminate the possibility of fuel leakages;
	 Only clean sand layers will be dredged from the Danube; if clayey- silty sand layers are intercented, the dredging should be stored.
	and the drag position should be removed to the sandy deposits:
	 Regularly checking of fluvial sand quality to ensure that it is
	adequate and that will not cause pollution of marine sediments.
	 It shall be forbidden to wash, repair, perform maintenance works
	worksite layout or on the neighbouring beach.
	 Immediately removing oil products accidentally leaking from
	operational machinery, by using absorbent materials, which will
	later be stored in special designed locations;
	platform and providing appropriate maintenance for their leaking
	into the substrate;
	 Appropriate domestic waste management; Op site there will be appoint leasting assigned and any second for the second second
	 On site, there will be special locations assigned and prepared for material and gear storage, equipped with intervention materials in
	case of accidental fuel, oil leaks;
	• It will be forbidden to collect sand from biologically productive
	marine areas (algae meadows, benthic associations etc.), to
	collected from the sea, only in areas lacking biological productivity
	and only after carrying out expert studies confirming it;
	• The storage of construction materials and waste shall be made
	exclusively inside the worksite layout, in specially set locations;
	marine environment protection and rehabilitation works contractor
	of the coastal zone to have a contractual relationship with a
	company specialized in remediation work, having the technical
	and numan capability to act in the case of accidental loss of oil on soil.
	Biodiversity
	• In Constanta (Tomis) and Mamaia areas it should be avoid the
	works during the cold period of year in order to not disturb the
	works have to be performed only in respect of the norms regarding
	the dust and noise emissions. Due to importance of the protected
	areas, the works has to be performed in compliance to all the
	previsions of the specific legislation in force;
	• In Lione North area the works have to be performed during the

	3
	 calm sea period, even if most of the suspensions generated during the execution works will be blocked by the northern dike of the touristic port (Eforie North Marina) and conducted out at sea in order to limit the possibility to migrate to the northern extremity of the ROSCI0197 Eforie North - Eforie South submerse beach. No mitigation measure is proposed for Common dolphin, Common bottlenose dolphin and Harbour porpoise as it is anticipated that any cetaceans present in the coastal waters around the proposed works would temporarily move away from the area due to localised increases in noise and will come back in these area after the finalising of the construction works; Traffic access for the works will be restricted, where possible, to existing roads and currently defined tracks within the proposed working areas. Construction plant on the beach will avoid travelling over vegetation growing on the beach. Pisheries Pollution control measures will be implemented to safeguard the shellfish growing areas. Good construction management practices will be employed to avoid any significant residual impacts on water quality. The storage of fuel, equipment and construction materials will be sited on an impervious base away from water, properly bunded and kept locked when unattended. The relevant codes of practice for construction from disturbance of sediment and potential spillage of construction from disturbance of sediment and potential spillage of construction from disturbance of sediment and potential spillage of construction grows the request. Benthos and benthic plants; Aquatic life and birds; Water quality; Sediment quality; Noise and vibration level.
	and responsibility) has been proposed.
Additional information/comments	During operation phase, no negative impacts are expected.
(iv) Proponent/developer:	
Name, address, telephone and fax numbers	National Administration Apele Romane – WATER BASIN ADMINISTRATION "DOBROGEA – LITORAL". Mircea cel Batran Street no 127, Constanta, Romania, tel:+40 0241 67 30 36, fax: +40 0241 67 30 25
(v) EIA documentation	
report or EIS) included in the notification?	(technical presentation of the project)
If no/partially, description of additional documentation to be forwarded and (approximate) date(s) when documentation will be available	The EIA report will be forwarded pending on the Bulgarian participation to the EIA procedure.
Additional information/comments	
2. POINTS OF CONTACT	Dette
	rany:
Authority responsible for coordinating activities relating to the EIA (refer to	Ministry of Environment and Water 22 Maria Louisa Blvd. 1000 Sofia

decision I/3, appendix):	Telephone: +359 2 988 25 77
Name, address, tel and fax numbers	Fax: +359 2 986 25 33
	Ms. Jacquelina METODIEVA
	Head of EIA/EAD Department
	Telephone: +359 2 940 60 32
	E-mail: metodieva@moew_government_bg
List of affected parties to which	- mail motoride motorigore mineric by
notification is being sent	
(ii) Points of contact for the Party of	foriain
Authority responsible for coordinating	Ministry of Environment
activities relating to the EIA (refer to	Head of EIA office: Ms.Daniela Pineta
Decision I/3, appendix)	Blvd. Libertatii nr 12. sect 5. Bucharest Romania
Name, address, tel and fax numbers	Tel 021 408 9537
	Fax 021 316 04 21
	e-mail: pineta.daniela@mmediu.ro
Decision making authority if different	Local Environmental Protection Agency Constanta
than authority responsible for	Address:
coordination activities relating to the EIA	
Name, address, tel and fax numbers	
3. INFORMATION ON THE EIA P	ROCESS IN THE COUNTRY WHERE THE PROPOSED ACTIVITY IS
(i) Information on the EIA process that will	Il be applied to the proposed activity:
Time schedule:	
Opportunities for the affected	Yes
party/parties to be involved in the EIA	
process	
Opportunities for the affected	Yes
party/parties to review and comment on	
the notification and the EIA	
documentation	
Nature and timing of the possible	The possible decision is the issuing of environmental agreement for
decision:	this project and issuing the construction authorization in 2012.
Process for approval of the proposed	The proposed activity will be approved by construction authorization
activity	after the environmental agreement (final EIA decision) is issued by the
	environmental competent authorities.
Additional information/comments	-
4. INFORMATION ON THE PUBLIC	C PARTICIPATION PROCESS IN THE COUNTRY OF ORIGIN
Public participation procedures	In accordance with Romanian legislation, public participation during
	the procedure: nublic hearing with minimum 20 working days access
	to the FIA documentation and an opportunity for submitting commont
1	in writing before and during public debate
Expected start and duration of public	Minimum 20 menting dans for multic debate.
consultation	Minimum 20 working days for public debate on EIA report.
CONSCIENCE.	
	The transboundary public consultation for the project will be agreed
	with the environmental authorities in Bulgaria, after confirmation of
	with the environmental authorities in Bulgaria, after confirmation of their involvement in the procedure.
Additional information/comments	with the environmental authorities in Bulgaria, after confirmation of their involvement in the procedure.
Additional information/comments 5. DEADLINE FOR RESPONSE	with the environmental authorities in Bulgaria, after confirmation o their involvement in the procedure.