



“NETWORK OF DANUBE WATERWAY ADMINISTRATIONS”

South-East European Transnational Cooperation Programme

**NATIONAL PLAN FOR IWW MAINTENANCE
ON THE NAVIGABLE CANALS (DANUBE BLACK SEA
CANAL AND POARTA ALBA MIDIA NAVODARI CANAL)
PERIOD 2011-2020**

Document ID:	O 4.16- National strategy plan for optimisation of waterway maintenance	
Activity:	Act 4.3	
Author / Project Partner:	Date:	Version:
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Abdurafi Moren/ACN	25.07.2011	V.04 -final

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1 LIST OF ABBREVIATIONS

NSP	National Strategy Plan
WM	Waterway maintenance
MoT	Ministry of Transport and Infrastructure
DRS	Danube Region Strategy
DBSC	Danube Black Sea Canal
PAMNC	Poarta Alba- Midia Navodari Canal
AFDJ	River Administration of The Lower Danube , Galati
SOP-T 2007-2013	Sectorial Operational Programme – Transport 2007-2013
SOP-T 2013-2020	Sectorial Operational Programme – Transport 2013-2020
FS	Feasibility study
AF	Application form
KM	kilometres
NO	number

2 SCOPE OF DOCUMENT

This document is planning document for inland waterways maintenance activities on the Danube Black Sea Canal and Poarta Alba Midia Navodari Canal. It covers activities on short terms (2011-2012) and medium terms(2014-2020) taking into accounts the legal requirements regarding development of national and european transport network, and legal requirements regarding operation and maintenance of the waterway.

3 BACKGROUND INFORMATION

3.1. NEWADA and WP4 info

The NEWADA (Network of Danube Waterway Administrations) project is co-financed under the South East Europe Transnational Cooperation Programme (SEE Programme) of the European Union. It is a three years project (2009-2012), which objective is to improve international cooperation (in the fields of hydrography, hydrology, waterway maintenance, as well as information and communication technologies on IWWs) between institutions which are dealing with inland navigation on the Danube River, as important international inland waterway. Institutions from eight countries are participating in this project: Austria, Slovakia, Hungary, Croatia, Serbia, Romania, Bulgaria, and Ukraine (Figure 1). **Administration of the Navigable Canals SH**, is one of twelve partners on this project, and its involvement is co-financed from EU – ERDF funds. Together with AFDJ Galati represents Romania in this project.



Figure 1: Countries participating in the NEWADA project

The project is based on work packages, six of them in total. The subject of the Work Package 4 is waterway maintenance, and the National plan for waterway maintenance is prepared under this work package.

3.2. National IWWs info

Danube Black Sea Canal(DBSC) connect the Trans-European Navigation System with a first size seaport like Constanta, on an shorter route with over 400 km than the existing one, passing through Sulina. Considering that, from the Black Sea an important intermodal transport platform has developed, where the largest vessels transiting the Suez and Bosphorus can dock and operate, provide especially favorable economic conditions and a rapid development of the entire corridor that stretches from Rotterdam to Constanta.

Therefore, we can state that both Danube - Black Sea and Poarta Alba - Midia Navodari waterways as well as the Constanta-South port which form objectives that bring value to the entire Rhine - Danube Trans-European Navigational System of navigable canals.



Through the opening of the two important waterways, Danube - Black Sea Canal (1984) and Poarta Alba - Midia Navodari Canal (1987), that cross Dobrogea have become the main source of water used for all purposes, including potable water and the supply for the bordering settlements of the Black Sea seashore.

3.2.1 Current status of navigable canals

Danube Black Sea Canal

The length of the canal between the Danube at Cernavoda km 299, 1 and the Black Sea at Agigea is of 64,410 km , being compound of 3 functional areas with the following characteristics:

- Canal Pool I - 4.1 kilometers, situated between the Danube and Cernavoda twin locks;
- Canal Pool II - 58 km, between Cernavoda locks and Agigea twin locks;
- Canal Pool III - 2 km, between twin locks Agigea and the Black Sea.

Poarta Alba- Midia Navodari canal

The canal makes the connection between Danube Black Sea Canal – Black Sea and Luminita port from the Tasaul lake.

The length of the canal between Danube Black Sea canal(at Poarta Alba - km 34 + 669) and the Black Sea at Navodari is of 27,757 km, at which it is added the connection with Luminita port of 5,0 km.



ACN is responsible for the maintenance works on these canals .

3.2.2. Current status of infrastructure

Buildings, equipment and facilities that provide function of navigable canals recorded a considerable age, which leads more frequently to the appearance of different problems affecting the canal traffic and jeopardize the safety of transported goods. Their current status is also due to lack of investment over the years have passed, but in some areas problems occurs also because of unfinished works on both canals.

To use an optimal capacity of the two canals is necessary to analyze the infrastructure, equipment and facilities that they serve to identify major problems facing the ACN.

3.3. Legal framework

Legal framework for inland waterways is defined on three levels: international, bilateral and national.

3.3.1. International legal framework

Danube Region Strategy

The EU Danube Region Strategy (DRS) is the macro-regional development strategy and action plan for the regions and countries located in the catchment area of the Danube river. It targets the sustainable development of the Danube macro-region as well as the protection of its natural areas, landscapes and cultural heritage.

The objective of the DRS is to achieve a sustainable increase in the region's economy and competitiveness, and to increase general welfare, with a view to establishing a flourishing, developing and attractive region. The DRS contributes to strengthening cohesion in the region and helps reduce existing regional differences. The support given to assist the competitiveness and the expansion of small and medium enterprises in the Danube Region is an important aspect of this. As an important element of the Central European policy, the DRS can also promote the European integration of the Western Balkans.

A priority action area of the DRS is to complete the connections in the energy and transportation networks, to develop the road and rail transportation corridors in the region and to improve of the security of energy supply. An integrated approach and the harmonization of Member State projects are key to the strategy.

The DRS incorporates the topic of water management, which is one of the priorities of the Hungarian Presidency in 2011. The strategy is a valuable contribution to shaping the new,

comprehensive water policy that is to begin in 2012, because it complements the earlier approach concentrating on protecting water quality with the issue of integrated and sustainable water management.

Danube Commission

The Danube Commission is an international intergovernmental organization, set up by the Convention regarding the regime of navigation on the Danube signed in Belgrade on 18 August 1948.

The primary tasks of the Danube Commission activity are provision and development of free navigation on the Danube for the commercial vessels flying the flag of all states in accordance with interests and sovereign rights of the member-states of the Belgrade Convention, as well as strengthening and development of economical and cultural relations of the said states among themselves and with the other countries.

The member-states of the Danube Commission are the Republic of Austria, the Republic of Bulgaria, the Republic of Hungary, the Federal Republic of Germany, the Republic of Moldova, the Russian Federation, Romania, the Republic of Serbia, the Slovak Republic, Ukraine and the Republic of Croatia.

Since 1954 the Commission has its seat at Budapest. The official languages of the Danube Commission are German, Russian and French.

The Danube Commission in its work rests upon the wide historical experience of navigation control on the international rivers of Europe and the best practice of the international river commissions, including the European Danube Commission, established under the Paris Peace Treaty from 1856.

The Danube Commission outlook is connected with the creation of the unified navigation system of inland waterways in Europe. With due consideration of the before mentioned the priority areas of the Commission activity are focused on the unification and provision of mutual recognition of the basic regulatory documents, required for the navigation on the Danube and on the other sections of the unified navigation system, contribution to the improvement of navigation conditions and safety of navigation, creating requirements for the Danube integration into the European system in the capacity of the significant transport corridor.

The commission meets regularly twice a year. It also convenes groups of experts to consider items provided for in the commission's working plans.

Its primary duties are:

- Supervising the implementation of the international convention that set it up in 1948.
- Preparing a general plan of the main works called for in the interest of navigation.

- Consulting with and making recommendations to the special administrations charged with various stretches of the river and exchanging information with them.
- Establishing a uniform system of traffic regulations on the whole navigable portion of the Danube and, taking into account the specific conditions of various sections of the river, laying down the basic provisions governing navigation on the Danube, including those governing a pilot service.
- Unifying the regulations governing river, customs and sanitary inspection.
- Harmonizing regulations on inland navigation with the European Union and with the Central Commission for the Navigation on the Rhine.
- Coordinating the activity of hydro-meteorological services on the Danube and publishing short-term and long-term hydrologic forecasts for the river.
- Collecting statistical data on aspects of navigation on the Danube within the commission's competence.
- Publishing reference works, sailing directions, nautical charts and atlases for purposes of navigation.

3.3.2. Bilateral agreements

Taking into account his geographical position ACN does not have common border with other states . The single common sector is with AFDJ Galati in confluence area of Danube with the Danube – Black Sea Canal.

3.3.3. National legal framework

Law no. 203/2003 regarding planning , development and modernization of european and national transport network

Planning , development and modernization of transport network represents a national priority.

The componenets of the transport network are:

- transport infrastructure,
- traffic management network
- positioning and navigation sistem network.

The guidelines aim to establish objectives, priorities and main courses of action to achieve the envisaged network throughout the territory of Romania. Through these guidelines are identified the priority projects that should contribute to network development in national and European context

The inland waterways network include: River Danube, rivers with their navigable portions, navigable channels and various arms that provide the link between them

Network and information on traffic management

The management and information about the maritime and inland waterway traffic network include:

- a) navigation management systems on inland waterways, coastal and ports;
- b) systems to determine the position of ships;
- c) reporting systems for ships carrying dangerous or polluting goods;
- d) communication systems for safety and hazards, able to ensure a high level of safety and efficiency of navigation and environmental protection in national navigable waters of Romania.

The GPS network include the systems able to determine the position and navigation by satellite that will be defined in future European Radio Navigation Plan.

These systems provide an efficient and reliable navigation and position determination, which can be used by all modes of transport

It is considered a priority project any infrastructure project which includes in particular:

- a) a measurement system of navigation depths;
- b) a signaling system for navigation and routing for ships, especially for vessels carrying dangerous and polluting goods
- c) communications systems for emergency and safety on inland waterways

Sustainable transport strategy for 2007-2013 and 2020, 2030 - Maritime and inland waterways

Priorities of the water transport for the period 2007 - 2013 focuses on the modernization and development of water transport infrastructure, ensuring traffic safety, along with strengthening of ports as intermodal logistics centers, which serve as support for the progressive realization of the intermodal freight network and the implementation of shipping services safer and more environmentally friendly.

To achieve these priorities will be take into account:

- Gradual implementation of Corridor VII projects that contribute to ensure the navigation condition whole year on the Danube, on the navigable canals Danube –Black Sea and Poarta Alba- Midia Navodari;
 - Increase in freight flows on the Lower Danube and in Constanta port through promotion activities of inland waterways transport, water transport infrastructure and related services;
 - promoting the use of transport by inland waterways transport as an option of additional road transport alternatives providing competitive supply chain "door to door";
 - development of the Constanta port as the main contact point of Europe with Asia and its inclusion in the network of motorways of the sea;
 - implementation of the development and modernization of maritime and fluvial ports;
- development of the functional structure of ports in order to transform them into logistics centers and their integration into intermodal transport system in a balanced framework of

inter-port cooperation and competition (taking into account : current and future potential of the ports, geographical influence area, traffic strategies - specialization and diversification - and functional development - export in relation to current and future trends of the market

- stimulation of environmental safety and efficiency of water transport;
- development of inspection, safety and rescue services ;
- implementation of IMO requirements in navigation safety field (EDI, dGPS, VTS, GMDSS systems);
- development of river information services (RoRIS – „Romanian River Information Services”);
- development of water transport infrastructure and ports facilities for tourism and entertainment activities ;
- development of water transport infrastructure in order to increase the water transport activities on inland waterways ;
- development of water transport in order to completion of specialized terminals ;
- create the legal framework in order to fulfill the requirements that are coming from conventions and agreements which Romania is participating.
- development and modernization of the road and rail transport from ports ;
- balancing the participation of all transport modes in relation with Europe and the countries from Black Sea area , in accordance with the general objectives of sustainable mobility that is required by Common Policy of Transport;
- improve the safety of human life and goods transported by sea or inland waterways , through continuous professional training of the seafarers in accordance with the international standards for training certification and Watch keeping required by the STCW '78 Convention with in force amendments and to which Romania acceded by Law no. 107/1992.

INTEGRATED STRATEGIC PLAN IN THE TRANSPORT AND INFRASTRUCTURE AREA

The Ministry of Transport and Infrastructure is the central public authority responsible with the development, regulation and implementation of EU transport policy.

Among the priority on the medium term of the MoT, established by the Government Program 2009-2012 are:

- development and modernization of the transport infrastructure (rail, road, waterway and air) of european and national interest , with priority on Pan-European Corridors no IV, VII și IX that crosses România, increase the safety conditions and services quality;
- development and modernization of transport means and facilities in order to improve service quality, traffic safety, security, environmental quality and ensuring the interoperability of transport system;

Part of this strategic program is also the Program for consolidation of slopes on the Danube – Black Sea canal and Poarta Alba Midia Navodari Canal

REGULATION OF OPERATION AND MAINTENANCE ON NAVIGABLE CANALS

Regulation of operation and maintenance is necessary those employers that are in charge with the maintenance of the canals and the objective .

The application of this regulation is mandatory , in order to ensure the functions in approved parameters of of all installations and equipments in accordance with the design documentation.

The provisions of the Regulation shall be binding on all users / beneficiaries. Any violation of the rules shall be sanctioned according to provisions established by the beneficiary of this channel.

There are two **Regulation of operation and maintenance** for each of the two navigable canals(DBSC and PAMNC).

3.3.4. Relevant institutions and authorities

Ministry of Transport and Infrastructure is the state authority in the field of transport and infrastructure. It exercise his authority directly or through specialized technical bodies, public institutions subordinated units operating under its direction. Ministry of Transport has the following duties:

- Ensure the control of funds allocated by the state budget, EU funds and resources from internal and external loans, control the status of execution for infrastructure works in its field of activity and the quality;
- supervises and controls the navigation on inland waterways of ships, regardless of their flag, controls the Romanian-flagged vessels in international waters;
- Established nominal and on parts, Romanian inland waterways , for the border waterways will take account of bilateral state border regime;
- established inland waterways , ports, laughing and river port in which pilotage is compulsory;
- checks and monitoring through experts appointed in evaluation committee, the procurement of contracting authorities which are under his authority or coordination;

4 THE SUBJECT OF THE PLAN

The subjects of this plan are navigable canals maintenance activities, mainly shore consolidation works . These activities include maintenance and reconstruction of the existing structures, construction of new structures in order to ensure the stability of the shores, dredging activities in critical points , in order to keep the transversal section of the fairway to

designed parameters ,ensure navigation in safety conditions and ensure the economical viability of transport on navigable canals .administrated by ACN .

Technical solutions considered in design of DBSC anc PAMNCi were at '70 level, so many projects have proved to be inefficient and outdated since the opening of navigation specifying that the works was partially finalized. Because of this, now, the entire waterway infrastructure presents deficiencies and need modernization works, which were always a concern of ACN. Finalization of investments and maintenance of the transport infrastructure remain two strategic objectives of our company.

Critical sections represents the bottlenecks where:

- because of the unfinished works navigation interruption is possible.

Navigation interruption may occur also:

-because of failure of navigation depth (Danube confluence area with the Danube Black Sea Canal) - alluvial

- Unfinished work of protection and consolidation of banks in areas with high slopes

- Landslides and collapses of banks that have affected both unconsolidated areas and part of the protection and carried out consolidation works

- *failure of locks hydro-mechanical equipments and instalation.* Because of their function, to ensure the vessels transit between two streams , the locks are considered critical points so the modernizations and maintainance works are the first priority . The critical points mentioned above are included in ACN development strategy on 2009-2020 terms as in Ministry of Transports policy.

The list of critical sections and their status is presented in the following table:

Nr.	Type of infrastructure	Technical status	Mesures for improvments
0	1	2	3
A– Danube Black Sea Canal			
1.	Canal locks (Agigea and Cernavoda) – Hidrotechnical construction – Equipments and installations	-good , in designed parameters -Satisfactory,life time expired(older than 27 years).	Rehabilitation of the hydrotechnical construction protection system (rubber and wood dock defenders) -modernization and rehabilitation of equipments and installations from Agigea and Cernavoda locks
2.	Pumping station		

	(Cernavoda), DBSC , km 60 - Hydrotechnical construction Equipments and installations	-Satisfactory, the building presents a seismically risk According with technical expertise , station building presents a low energy efficiency -Satisfactory- life time expired(older than 27 years)..	-Rehabilitation(consolidation) of the building(electric area) and station thermal insulation. -Modernization and rehabilitation of the equipments and installations
6.	Waterway (fairway and banks protections –public infrastructure	- confluence area of Danube and DBSC get clogged frequently (at aprox. 3 years); -unfinished shore protection and consolidation works above the quote +18,00 mrMB; - the gravitational operation of the canal can not ensure the waters flows necessary for operations level during he year (80% of the year the opearion level is ensured by pumping station from Cernavoda)	Periodical dredging or execution or underwater hidrotechnical constructions in order to prevent clogging in the junction area with Danube river Finalization of protection and consolidation works ; Rehabilitation and completion of drainage and surface water colecting system , -Modernization of the equipments and installations of Cernavoda pumping station
7.	Comunication and transmision data sistems	-Satisfactory, life time expired(older than 27 years)	There are in implementation : - Trafic management system on DBSC and information about transport on inland waterways – RoRIS -ACN; -Modernization of the signalling system on DBSC

B– Poarta Alba-Midia,Navodari Canal			
Nr.	Type of infrastructure	Technical status	Measures for improvements
0	1	2	3
8.	Canal locks (Ovidiu and Navodari– -hydrotechnical construction – equipments and installations	-good, in designed parameters -Satisfactory, life time expired(older than 24 years)	Rehabilitation of the hydrotechnical construction protection system (rubber and wood dock defenders -modernization and rehabilitation of equipments and installations from Agigea and Cernavoda locks
11.	Waterway (fairway and banks protection –public infrastructure	-unfinished shore protection and consolidation works on high slopes area; - weak functioning of gravitationally supply system of 2 stream of PAMNC , because of unfinished exhaust water pipes works from ,Ovidiu locks ,	- Finalization of protection and consolidation works ; Rehabilitation and completion of drainage and surface water collecting system , - -the completion of exhaust water pipes.
12.	Comunication and transmision data systems	-Satisfactory, life time expired(older than 24 years)	There are in implementation : - Trafic management system on PAMNC and information about transport on inland waterways – RoRIS -ACN; -Modernization of the signalling system on PAMNC

5 OBJECTIVE AND GOALS

The overall objective of ACN is the efficient administration of the two canals with the goal of sustainable development of freight traffic and waterway maintenance functions, according to EU requirements.

Objectives and goals are arranged according to proposed timeframe in three groups: long term, mid term and short term.

5.1. WATERWAY

Long term overall objective(2020)

Modernization of transport infrastructure administrated by ACN by:

- Finalization of protection, defense and consolidation works on DBSC and PAMNC

Mid term objectives (until the end of 2015) are:

- Modernization of complex pumping station from Cernavoda
- Modernizations of the locks

Sustainable development of transport sector by:

a. Improve traffic safety on waterway transport:

- Topohydrographical systems and modernization of the signaling systems on DBSC and PAMNC
- Implementation of a monitoring system for hydro-meteorological parameters on DBSC and PAMNC
- Implementtaion of traffic management system on Danube Black Sea Canal and information about the transport on inland waterways and its interoperability with the RO-RIS on the Danube
- Rehabilitation and modernization of PSI installations on Agigea , Cernavoda, Navodari, Ovidiu locks.

b. reduce the impact of transport activities on environment by:

- Modernizing the quality management system of the navigable waterways, by installing automatic monitoring stations of water quality

5.2. Administration

Continuous training of employees and participation in expert exchange programmes

5.3. Customers

Diversification and improvement of services to customers

6 ACTIVITIES

To fulfill these objectives ACN is considering a series of activities divided into:

6.1. Activities :

-related to waterway

This consist in identifying the financial sources for proposed projects, preparing technical documentations and application forms and further, implementation of projects .

For this activities there are three sources of financing, namely:

- ACN own resources for maintenance of the waterway (including dredging works)
- Sources from the state budget: the funds are allocated to complete works for protection and consolidation of banks on DBSC and PAMNC
- European funds - for the modernization works (Sectorial Operational Programme- Transport 2007-2013 and 2014-2020)

-related to administration

An successful implementation of infrastructure works and a good maintenance of waterway require a high level of experience and knowledge in this area. The human resources policy is considering to ensure the optimally necessary staff , according to organizational structure, able to ensure implementation of strategies related to:

- Professional training in the management of projects especially those funded from EU funds
- Participation in experts exchange programs
- Involve staff in preparing and carrying out projects financed from European funds

-related to customers

For the users, ACN provides the following services:

- -transit-service for vessels
- -water pumping and delivery-services
- -related services
- - lease space
- - port management (platforms rental , premises access, power supply)

We have a questionnaire that is sent annually to evaluate our customers satisfaction.

Regularly , this questionnaire is improved and depending of requirements of users more services may be achieved.

6.2. Communication with users

Regarding the communication between authority and users, ACN has radio services , which cover the canals 100% .

Every ship that passes the canals can report a weakness or inform about any event encountered during transit. Before the exit from the canals ships commander submits a report about the journey. There were cases when convoys suffered because of underwater obstructions and administration took immediate measures for their removal or signalization.

The communication ways between company and users is governed by Ministry Order (No. 426/2006)

For any situation occurred on navigable canals (dredging works, Undercrossing, works along the berths), ACN send a NtS. to the Romania Naval Authority . RNA publish this NtS on national site , in RIS standard.

In emergency situations, if an event occurs is announced by VHF by the central dispatch.

6.3. Connection and relevancy to other IWW management /activities

Marking activities:

The marking systems of the shore will be available starting with 2012 after the implementation of the project: „Modernization of signaling system on DBSC” and „Modernization of signaling system on PAMNC”

RIS :

RIS services will be available on navigable canals (DBSC and PAMNC) starting with 2012(second quarter) after the implementation of the project „Traffic management system on Danube Black Sea Canal and information about the transport on inland waterways”-RoRIS –ACN

7. IMPLEMENTATION TIME LINE

Implementation of activities mentioned above, depends primarily on the available financial resources. An estimation is provided in the table below:

Activities	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Waterway										
Finalization of protection, defense and consolidation works on DBSC										
Finalization of protection, defense and consolidation works on PAMNC										
Modernization of complex pumping station from Cernavoda										
Modernizations of the locks										
Topohydrographical systems and modernization of the signaling systems on DBSC and PAMNC										
Implementation of a monitoring system for hydro-meteorological parameters on canals										
Traffic management system on Danube Black Sea Canal and information about the transport on inland waterways and its interoperability with the RO-RIS on the Danube										
Modernization of PSI installations on Agigea , Cernavoda, Navodari, Ovidiu locks.										
Modernizing the quality management system of the navigable waterways, by installing automatic monitoring stations of water quality										
Administration										
Staff training										
Expert exchange										
Customers										
Customers evaluation questionnaire										

Review of questionnaire									
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PROJECTS

The projects included in this strategy , some of them are being implemented with completions within 2012 . The feasibility study was financed from own company resources . For those projects the value is below 5 million euro, for each of them .

The feasibility study for major projects was financed by state budget or EU budget..

In present, 2011, the status of the project is shown on below table:

Planned projects - status and costs

Nr. crt	Project title	Type of project	Sursa de finantare	Total value(euro)	Project status
1	Finalization of protection, defense and consolidation works on DBSC	Unfinished investments	State budget	70.000.000	FS on going Works in critical points (depending on state budget)
2	Finalization of protection, defense and consolidation works on PAMNC	Unfinished investments	State budget	50.000.000	FS on going Works in critical points (depending on state budget)
3	Modernization of complex pumping station from Cernavoda	Modernization	SOP- T 2007-2013 2014-2020	2.000.000	FS finalized In evaluation of JASPERS In preparation: AF
4	Modernizations of the locks	modernization	SOP- T 2007-2013 2014-2020	250.000.000	FS finalized In evaluation of JASPERS In preparation: AF
5	Topohydrographical measurements systems	Modernization	SOP- T 2007-2013	870.000	Finalized : 2010
6	Modernization of the signaling systems on DBSC	Modernization	SOP- T 2007-2013	4.262.440	In implementation Deadline :sept 2011
7	Modernization of the signaling systems on PAMNC	Modernization	SOP- T 2007-2013	3.032.661	In implementation Deadline :sept 2011
8	Implementation of a monitoring system for hydro-meteorological parameters on canals	modernization	SOP- T 2007-2013	845.000	FS finalized In preparation: AF
9	Traffic management system on Danube Black Sea Canal and information about the transport on inland waterways and its interoperability with the RO-	modernization	SOP- T 2007-2013	4.369.678	In implementation Deadline : april 2012

	RIS on the Danube				
10	Modernization of PSI installations on Agigea , Cernavoda, Navodari, Ovidiu locks.	modernization	SOP- T 2007-2013 2014-2020	5.000.000	FS finalized In evaluation of JASPERS In preparation: AF
11	Modernizing the quality management system of the navigable waterways, by installing automatic monitoring stations of water quality	Modernization	SOP- T 2007-2013	4.787.204	In evaluation: AF In preparation: documentation for auction

8 MEASURES AND INDICATORS

For each activity the relevant indicator in accordance with the proposed objective and is provided in the below table:

Objective/measures	Time frame	Indicator	Measure unit	Before implementation	After implementation
Modernization of transport infrastructure	2011-2020	Finalized consolidation works on DBSC(between +10,00 - +60,00 Level)	KM	4	20
		Finalized consolidation works on PAMNC(between +4,50 - +60,00 level)	KM	2	14
Improve traffic safety	2011-2016	Permanently monitoring of the waterway section	%	6	100
		Capacity to ensure the signalling of DBSC banks	%	41	100
		Capacity to ensure the signalling of PAMNC banks	%	50	100
		Waterway length covered by RIS services	%	60	100
		AIS base station for identify and	No.	0	6

		locate vessels			
		Number of RIS sevicees harmonized on EU level	No.	0	7
		Automatic gathering station for hydro-meteo parameters	No.	0	7
reduce the impact of transport activities on environment	2011-2013	Automatic monitoring station of water quality parameters	No.	0	12
		Intervention time from pollution moment	hours	24	10
<i>Continuous training of employees</i>	2011-2020	Numbers of employees in training	No.	0	50
<i>Participants in expert exchange programme</i>	2011-2020	Number of employees	No.	0	15

9 MONITORING AND EVALUATION

Monitoring is a systematic analysis mechanism that presents analytical evaluation of implementation of programs, strategies, projects and consists in collection, analysis, communication of data and use of obtained information about the progress of activities.

Because monitoring is based on collecting information, we can say that it is basically a description of the situation, at a time. During the implementation of programs, strategies, monitoring ensure the collection of data that will generate information about the progress of the objectives.

The process allows stakeholders to identify potential problems before their occurrence or immediately thereafter.

Monitoring of implementation is performed at three level. : ACN, national level and international level.

National Plan for IWW Maintenance		
Implementing body	ACN	
National level	Ministry of Transport and Infrastructure	
	Directorate General infrastructure, multimodal transport Private Sector Participation	Management Authority of Sectorial Operational Programme Transport
International level	NEWADA	
	Board of Directors	

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