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INVESTIM IN VIITORUL DUMNEAVOASTRA Guvernul Romaniei Guvernul Bulgariei INTERREG

STRATEGIA COMUNA PENTRU IMBUNATATIREA

SIGURANTEI NAVIGATIEI PE DUNAREA DE JOS PENTRU PERIOADA

2019 – 2025

Mai 2018

www.interregrobg.eu

CUPRINS

ACRONIME

AGN /Agreement on Main Inland Waterways of International Importance/	Acordul European privind marele cai navigabile de importanta internationala
CN APDF SA Giurgiu	Compania Nationala Administratia Porturilor Dunarii Fluviale Societate pe actiuni Giurgiu
CN APDM SA Galati	Compania Nationala Administratia Porturilor Dunarii Maritime Societate pe actiuni Galati
ERI	Raportare electronica
EUSDR	Strategia Uniunii Europene pentru regiunea Dunarii
INEA	Agentia Executiva pentru Inovare si Retele a CE
Inland ECDIS	Sistem ae afisare harti electronice
LNWL (low navigable water level)	Nivel scazut de navigatie al apei
NRDMS	Sistem national de gestionare a datelor de referinta
NtS	Avize catre navigatori
NtSNtS / Notices to Skippers/	Notificari catre navigatori
RIS	Servicii de informare fluviala
RoRIS	Serviciile de informare fluviala din Romania
SWOT analiza	Analiza partilor puternice si partilor slabe, oportunitati si amenintari
TEN-T	Reteaua trans-europeana de transport
Viadonau	Compania Austriaca de Management al Cailor Navigabile /Donau-Österreichische Wasserstraßen-Gesellschaft MBH/
VTMIS	Sistem de informare privind Managementul Traficului de Nave
VTT	Sistem de localizare si de urmarire nave
WAMS	Sistem de management al activelor in sectorul de apa /Waterway Asset Management System
WMMS	Sistem de intretinere si management al cailor navigabile ale Dunarii Wasserstraßen Management System

AIS	Sistem de monitorizare, urmarire si identificare automata a navelor
AGMI	Agentia de Garantare multiratelara a Investitiilor
VNB	Venitul national brut
BULRIS	Infrastructura de telecomunicatii a sistemului informational fluvial in partea bulgara a Dunarii
ISIP	Intreprinderea de Stat “Infrastructura portuara”
BEI	Banca Europeana de Investitii
ESIE	Fonduri Structurale si de Investitii Europene
FEIS	Fondul European de Investitii Strategice
LSMCNIPRB	Legea privind spatiile maritime caile navigabile interioare si porturile Republicii Bulgaria
AEAM	Agentia Executiva “Administratia maritima”
AID	Asociatia Internationala de Dezvoltare
BIRD	Banca Internationala pentru Reconstructie si Dezvoltare
MIE	Mecanismul pentru interconectarea Europei
IMM	Intreprinderi mici si mijlocii
MTTIC	Ministerul Transporturilor, Tehnologiei informationale si Comunicatiilor.
CFI	Corporatia Financiara Internationala
CISLMI	Centrul International de Solutionare a Litigiilor in materie de Investitii
AAP	Autoritati de administrare a porturilor
CCO	Certificat de conformitatea operationala
CCO	Certificat de conformitatea operationala
FAR CTF	FAR Colaborarea transfrontaliera

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Introducere

Pregatirea variantei finale a strategiei comune de imbunatatire a sigurantei navigatiei pe Dunarea de Jos s-a efectuat ca urmare a realizarii Activitatii 4 din achizitia publica cu obiect "*Elaborarea unei strategii comune pentru imbunatatirea sigurantei navigatiei pe Dunarea de Jos"*. Aceasta a fost anuntata cu ocazia implementarii unui proiect al primariei Municipiului Ruse si al Municipiului Giurgiu pentru "Dezvoltarea fluviului Dunarea pentru o mai buna conectivitate a Euroregiunii Ruse-Giurgiu cu coridorul Pan-European de transport nr.7", finantat prin Programul INTERREG V-A Romania Bulgaria.

Obiectivul principal al proiectului este de a dezvolta o strategie comuna de imbunatatire a sigurantei transportului pe caile navigabile din regiune transfrontaliera Romania-Bulgaria a Dunarii de Jos.

Realizarea acestei activitati este o continuare logica si o sinteza a rezultatelor celor trei activitati anterioare ale proiectului. In acest fel si in conformitate cu obiectul achizitiei, prima parte, care consta din p. 1, 2, 3 si 4, prezinta in rezumat ceea ce s-a facut in partea analitica a lucrarii.

Pe aceasta baza este construita partea strategica, care cuprinde urmatoarele puncte din structura materialului. Incepe cu definirea viziunii, misiunii, scopurilor strategice, prioritatilor investitionale si obiectivelor operationale. Pentru a realiza sarcina stabilita in acest cadru strategic s-a elaborat si prezentat un plan de actiune, impreuna cu masuri de gestionare a riscului, masuri pentru includerea autoritatilor responsabile si masuri pentru optimizarea cailor navigabile.

Ultima parte finala este dedicata deducerii recomandarilor pentru implementarea planului de actiune elaborat. Scopul este de a facilita gestionarea si aplicarea planului de actiuni. Ele sunt orientate in intregime catre managamentului autoritatilor si institutiilor responsabile.

1. Evaluarea starii in care se afla infrastructura transportului pe fluviul Dunarea in regiunea transfrontaliera Romania – Bulgaria.

1.1. Cadrul legal.

1.1.1. Cadrul legal in Bulgaria.

Regimul juridic al porturilor, spatiilor maritime si cailor navigabile interioare este reglamentat de Legea privind Spatiile Maritime, Caile Navigabile Interioare si Porturile Republicii Bulgaria (LSMCNIPRB). Porturile includ acvatoriul, teritoriul si infrastructura pe tarmul Marii Negre si fluviului Dunarea, insulele si canalele, siuate pe teritoriul unuia sau mai multor municipalitati si unesc conditiile naturale, artificiale si organizatorice de imbarcare, sedere si deservire a navelor in siguranta. Controlul asupra tuturor porturilor (cu exceptie celor militare) este efectuat de Ministrul transportului, Tehnologiei Informationale si Comunicatiilor. Infrastructura portuara si celelalte active fixe ale porturilor de transport public de importanta nationala sunt gestionate de Intreprinderea de Stat "Infrastructura portuara" (ISIP). Conform LSMCNIPRB, Consiliul de Administratie al ISIP adopta programul anual al Intreprinderii de Stat pentru constructia, reconstructia, reabilitare si intretinere porturilor de transport public de importanta nationala si il propun spre aprobare Ministrului transportului, Tehnologiei Informationale si Comunicatiilor.

In conformitate cu LSMCNIPRB conditiile si procedura de inregistrare a porturilor, a terminalelor portuare si a santierelor portuare specializate sunt reglementate de Ordonanta nr. 19 din 9 decembrie 2004 privind inregistrarea porturilor Republicii Bulgaria, fiind creiat un Registru Public al porturilor din Republica Bulgaria, tinut de Agentia Executiva "Administratia Maritima" si publicat pe site-ul internet al institutiei[1]. Porturile, terminalele portuare si santierele portuare specializate se inregistreaza in Registrul Porturilor dupa ce Ministerul Transportului, Tehnologiei Informationale si Comunicatiilor emite Certificatul de conformitate operationala (CCO), iar verificarile pentru emitere se efectueaza de directiile

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[1] http://www.marad.bg/page.pHp?category=53

"Administratia maritima" din Burgas, Varna, Lom si Ruse. Regimul emiterii CCO este reglementat in Ordonanta nr. 9 din 17 octombrie 2013 privind Cerintele de Conformitate Operationala a Porturilor si a Santierelor Portuare Specializate (OCCOPSPS).

Teritoriul si infrastructura porturilor pot fi proprietatea statului, a municipalitatii, a persoanelor fizice si juridice.

LSMCNIPRB defineste, de asemenea, si serviciile portuare, cum ar fi serviciile cu caracter comercial furnizate in porturile de transport public si prestate de operatorii portuari.

Serviciile portuare sunt impartite in urmatoarele categorii:

- Servicii tehnice maritime – pilotare, remorcare (remorcare sau impingere), acostare, incarcarea navelor cu apa potabila, telefonie si energia electrica; receptia si prelucrarea deseurilor – rezultatul activitatii de navigatie si altele;
- Manipularea marfurilor si postei – incarcare, descarcare, amenajare, depozitare, reambalare diferitelor tipuri de marfuri, transportul intern de marfuri si posta in port (intre terminale) si altele;
- Servicii de pasageri.

Dreptul acordat operatorilor portuari de a presta servicii in porturile de transport public, se defineste ca acces la piata serviciilor portuare. Accesul la piata de servicii portuare in temeiul art. 116, al.3, p. 2 in porturile de transport public de importanta nationala se acorda prin concesiune – in cazurile prevazute in art. 117 din LSMCNIPRB.

1.1.2. Cadrul legal in Romania

Constructia si intretinerea infrastructurii porturilor Dunarii in Romania este realizata si controlata de Ministerul Transporturilor si Infrastructurii prin societati de stat special create, care indeplinesc functia de autoritate portuara. Acestea sunt CN APDF SA Giurgiu[2], infiintata prin Hotararea Guvernului nr. 520 din 24 august 1998, privind infiintarea Companiei Nationale "Administratia Porturilor Dunarii" – SA Giurgiu si CN APDM SA Galati[3] infiintata prin Decizia nr. 518 din 24 august 1998 privind infiintarea Companiei Nationale

[2] http://www.apdf.ro
[3] http://www.romanian-ports.ro/html_nou/index.php

“Administratia Maritima a Porturilor Dunarene” – SA Galati.

Cele doua societati in calitate de autoritati portuare, implementeaza politicile Ministerului Transporturilor si infrastructurii pentru dezvoltare si intretinere infrastructurii portuare si a programelor de dezvoltare a cailor navigabile. Ele asigura indeplinirea obligatiilor asumate de stat in acordurile si conventiile internationale, la care Romania este parte. Gestionarea se realizeaza atat direct prin servicii portuare, cat si prin concesionare, chirie si alte forme contractuale de teritorii destincte, active si parti din infrastructura portuara.

In activitatea sa cele doua societati de stat respecta cerintele Ordinului ministrului de finante nr. 946/2005 privind aprobarea “Codului de Control Intern /Management, inclusiv Standardele de Control Intern/ gestionarea societatilor publice si dezvoltarea sistemelor de control intern, modificate si completate ulterior.

Infrastructura portuara gestionata de CN APDF SA Giurgiu si CN APDM SA Galati face parte din proprietatea publica de interes national.

CN APDF SA Giurgiu administreaza 11 porturi de la Bazias, municipiul Socol in judetul Caras-Severin, Banat pana la Cerna Voda, cu exceptia porturilor Zimnicea si Turnu Magurele, care se afla sub administrarea autoritatilor locale. CN APDM SA Galati administreaza infrastructura portuara situata pe malul maritim al Dunarii, respectiv franco port si dane de acostare nave, de la km 12,5 pana la km 17,5 si de la km 251 pana la km 255, inclusiv Galati, Braila, Tulcea, Harsova, Isaccea, Mahmudia si ramuri din Macin, Chilie si Sfantul Gheorghe.

1.2. Caracteristici generale si utilizarea infrastructurii de transport fluvial pe Dunare in regiunea transfrontaliera Romania- Bulgaria

Datele privind infrastructura transportului fluvial pe Dunare in regiunea transfrontaliera Romania - Bulgaria si utilizarea acesteia pot fi obtinute din cateva surse principale, cum ar fi Eurostat, Institutele Nationale de Statistica din ambele tari responsabile de transportul fluvial, Institutiile de Stat, Organizatiile Internationale, publicatiile oamenilor de stinta, organizatiile de cercetare si firmelor de consultanta.

Sectiunea navigabila a Dunarii, care invecineaza si este utilizata de Bulgaria este de 470 km, in timp ce in Romania este de 1075 km. Impreuna cu afluentii navigabili ai Dunarii, calea navigabila totala in Romania este de 1647 km. In plus, in Romania exista 132 km de canale,

care sunt de asemenea utilizate pentru navigatie. Astfel, lungimea totala a cailor navigabile din Romania este de 1779 km, care este de 3,8 ori mai mare decat in Bulgaria.

Frontul de chei al porturilor fluviale pentru transportul public de importanta nationala in Bulgaria are o lungime totala de 9 080 m, si include 44 locuri pentru nave de transportat marfa, 5 pentru transporturi ro-ro, 14 pentru transport de pasageri si 3 pentru nave de serviciu.

Frontul de chei al porturilor fluviale pentru transportul public de importanta regionala in Bulgaria are o lungime totala de 4 964 m, include 30 locuri pentru nave de transportat marfa, 2 pentru transporturi ro-ro, 3 pentru transport de pasageri si 12 pentru nave de serviciu.

Capacitatea de transbordare in conditiile existente, mijloacele tehnice si tehnologiile de exploatare in porturile fluviale este estimata la aproximativ 22,5 mil. de tone. In ceea ce priveste capacitatile de transfer, cea mai mare pondere au porturile din regiunea Ruse – 50 %, datorata prezentei unui numar mare de porturi de pasageri si terminale de feribot.

In partea romana a Dunarii exista 29 de porturi, dintre care cele mai mari sunt porturile Galati, Braila si Tulcea, care sunt situate in zona de mare a fluviului. Acestea fac parte din reteaua TEN-T, impreuna cu porturile Giurgiu, Oltenita si Drobeta Turnu Severin.

Porturile din Galati, Braila si Tulcea, situate la punctual de intersectie a Dunarii fluviale si maritime, sunt cele mai mari porturi interioare (Galati – cu suprafata de 864 131 mp, 56 de locuri de ancorare; Braila – cu suprafata de 389 630 mp, 25 de locuri de ancorare; Tulcea - cu suprafata de 82 764 mp si 41 de locuri de ancorare) si au o capacitate de procesare de aproximativ 34 de milioane de tone anual, dintr-un total de 52 de milioane pe an in Romania.

Numarul total al navelor autopropulsate si neautopropulsate in Bulgaria este in continua scadere. Din 157 de nave in 2007, in anul 2016 scad la 110. Capacitatea de incarcare a acestora de asemenea scade – de la aproape 245 mii. t in anul 2007 la 186.5 mii t. in anul 2016.

O tendinta similara, dar cu ritm mai scazut de declin se observa si in Romania. Acolo numarul navelor autopropulsate si neautopropulsate scade de la 1199 in anul 2007 la 1134 in anul 2016. Capacitatea de incarcare a acestor nave scade cu 46 mii t. in perioada 2007-

2015, ajungand la 1468 mii t. In schimbul acestei reduceri creste capacitatea medie a unei nave. In Bulgaria aceasta este 1,69 mii t. in anul 2016 si 1,56 mii t. in anul 2007, iar in Romania cifrele respective sunt 1,29 mii t. in anul 2015 si 1,25 mii t. in anul 2010.

Structura de vechime a navelor fluviale din Bulgaria este extrem de nefavorabila. O pondere predominanta de 35 % au navele fabricate in perioada 1981-1990, adica acum 28-30 de ani. Aproximativ 21% din nave au fost date in exploatare in urma cu 40-50 ani si numai 4% dintre acestea sunt noi, adica sunt construite in ultimii 20 de ani[4].

Statisticile romanesti furnizeaza date privind structura vechimei numai pentru remorcherele si impingatoarele (inclusiv barci non-pasageri) care in anul 2016 sunt in total de 294. Principalul contingent al acestora a fost produs in perioada 1980-1989 si are vechime de peste 28 de ani. Mai mult de un sfert din aceste nave sunt construite in perioada 1950-1969, si au varsta de 49-68 de ani. Dupa anul 1990 in Romania sunt construite 14% din remorcherele si impingatoarele existente.

Tabelul 1. Numarul si capacitatea de incarcare a navelor din Bulgaria si Romania

	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Numar nave de marfa uscata autopropulsate si neautopropulsate										
Bulgaria	157	159	158	151	149	141	127	117	114	110
Romania	1199	1221	1232	1208	1097	1131	1152	1137	1134	:
Capacitate de Incarcare, mii t.										
Bulgaria	244.8	250.5	253.8	247	246.6	236.6	216.9	197.7	193.4	186.5
Romania	**:**	**:**	**:**	1514	1450	1470	1475	1468	1468	**:**

: - lipsa de date

Sursa datelor: Eurostat, 2018.

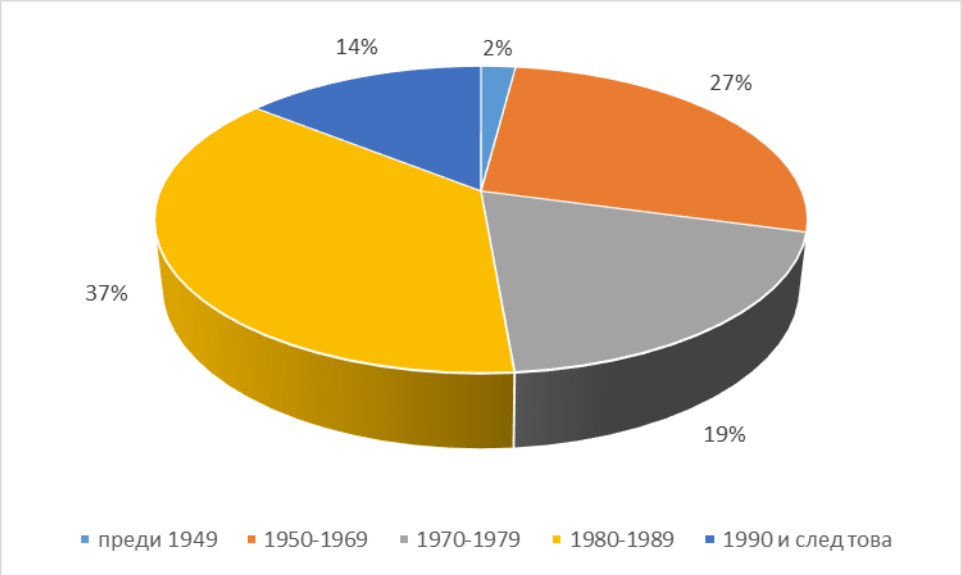
Aceasta structura de vechime impune operatorilor acestor nave, din ambele tari, sa faca in mod constant costuri ridicate de intretinerea lor in stare de functionare, cea ce le reduce competitivitatea.

[4] Koralova P. Specifics of the Danube Fleet Management, Economic Studies, 6, 2017, pp. 118-152.

Transportul fluvial romanesc asigura transportul a aproximativ 30 000 mii tone de marfuri mediu pe an pentru perioada 2006-2016. Cu exceptia unui declin mai serioz in anul de criza 2009, volumul total al marfurilor transportate, exprimat in tone, este aproape constant.

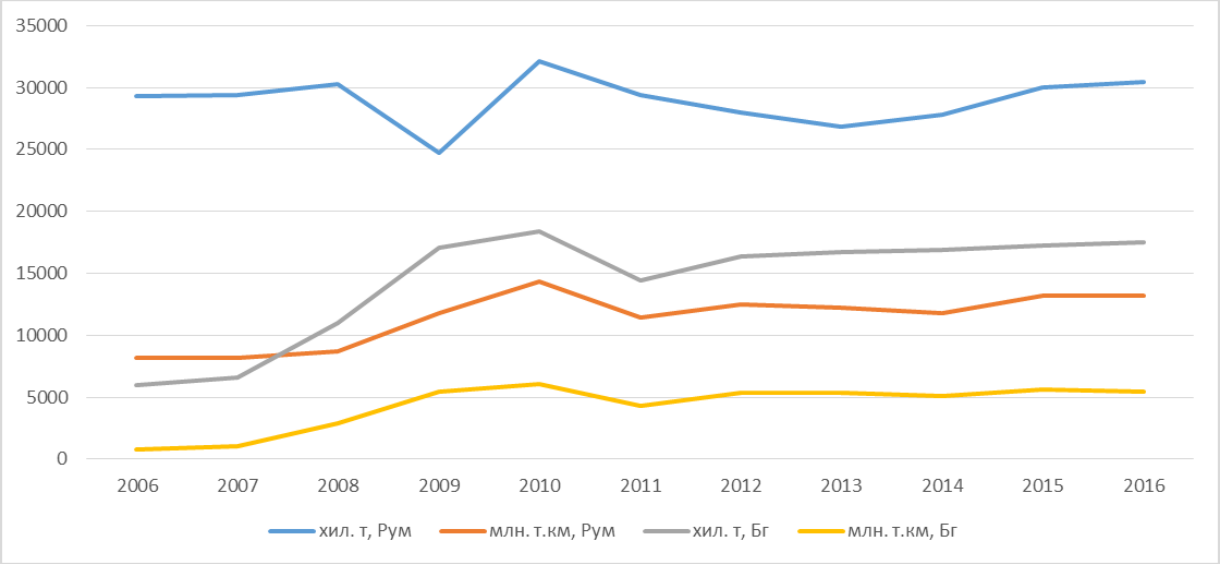
Spre deosebire de Romania, volumul marfurilor transportate de Bulgaria, exprimat in tone, pentru aceeasi perioada creste semnificativ - de la 5 950 mii t. in anul 2006 pana la 14 467 mii t. la sfarsitul perioadei analizate. Aceasta reprezinta o crestere de aproape 3 ori. Interesant este, ca in anii de criza pentru tara 2009 - 2010, rata medie anuala este mai ridicata, decat in anii de dupa criza, care indica cresterea interesului si restructurarea fluxurilor de marfa in favoarea transportului fluvial ieftin.

Figura 1. Repartizare dupa anul de fabricatie a remorcherele si impingatoarele utilizati in Romania



Sursa: Institutul Naţional de Statistica. Mijloace de transport existente, la sfarsitul anului 2016, 2017.

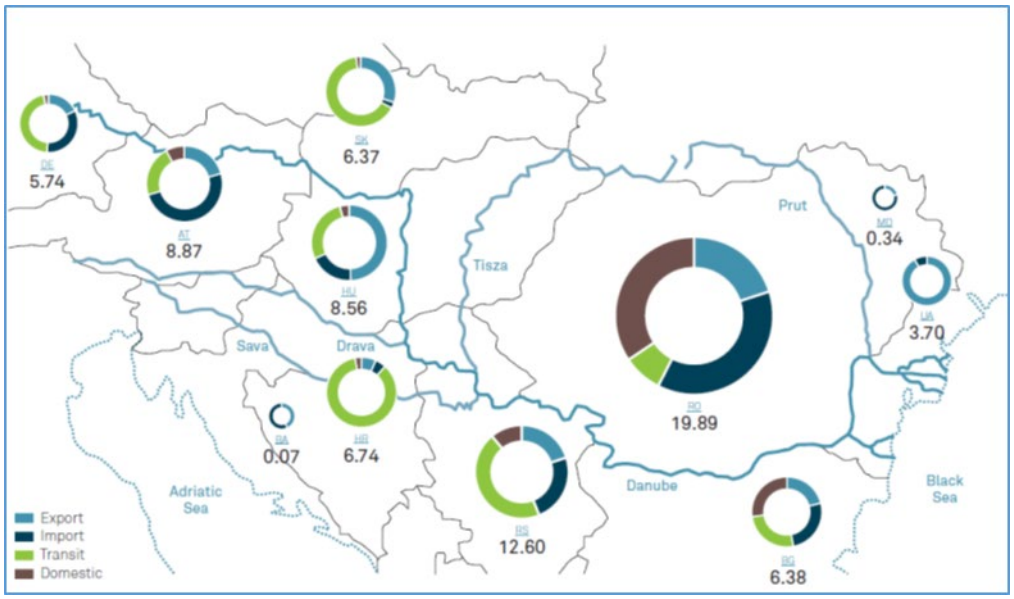
Graficul 1. Marfuri transportate prin transportul fluvial in Bulgaria si Romania



Sursa datelor: Eurostat

Cu aceste volime de marfuri transportate, Romania se situiaza pe primul loc printre celelalte tari dunarene, in timp ce Bulgaria impreuna cu Slovacia se situiaza pe locul 5– 6.

Schema 1. Repartizarea fluxului comercial, transportat pe fl. Dunarea in anul 2016, pe tari, mii t.



Sursa: Viadonau, Annual Report on Danube Navigation in Austria 2016.

Indicatorul mai precis al performantei transportului fluvial masoara distanta parcursa si greutatea marfii transportate. Dupa acest indicator, curbele dinamicii au aproape aceeasi

variatie. Se poate remarca, ca si aici dinamica transportului in Bulgaria este mai ridicata decat in Romania, care se datoreaza bazei de pornire exceptional de scazuta – 786 mil. tkm in anul 2006.

Distributia modala a marfurilor transportate arata ca transportul fluvial asigura transportul la mai mult de un sfert din marfurile din Bulgaria, in timp ce in Romania acesta se refera la aproape 30% din marfuri. In comparatie cu UE, aceasta cota este mai ridicata si indica rolul important al transportului fluvial in economia celor doua tari.

Tabelul 2. Repartitia modala a transportului rutier de marfuri, % din tkm pentru anul 2015

Tip de transport	Rutier	Cale ferata	Fluvial	Prin conducte
UE	**71.1**	**17.4**	**6.1**	**4.8**
Bulgaria	**53.0**	**17.3**	**26.6**	**3.1**
Romania	**37.1**	**30.8**	**29.7**	**2.3**

Sursa: EC, EU Transport In Figures – Statistical Pocketbook 2017.

Structura marfurilor transportate fluvial de Romania este dominata de doua categorii - minereuri, fonta si otel, materii prime minerale crude si prelucrate si materiale de constructii. O pondere mult mai mica o are productia agricola si combustibilii minerali, potrivit unui studiu publicat in anul 2007.

O schimbare esentiala este remarcata 10 ani mai tarziu. Principalele marfuri transportate in Romania in cursul anului 2017 sunt bunurile agricole – 28,7%, urmate de minerale cu 27,7% si materialele de constructii – 20,7%. Cu caracter de completare sunt carbunele cu o pondere de 6,3% si produsele petroliere cu pondere de 4,6%.[5]

Structura marfurilor bulgare transportate pe fluviul Dunare in cursul anului 2007 este distribuita mai uniform. Cea mai mare pondere in aceasta ocupa materiile prime minerale prelucrate si crude si materialele de constructii, urmate de combustibilii minerali. Apoi sunt piesele turnate din fonta si otel, minereurile si produsele agricole. Asemanarile dintre

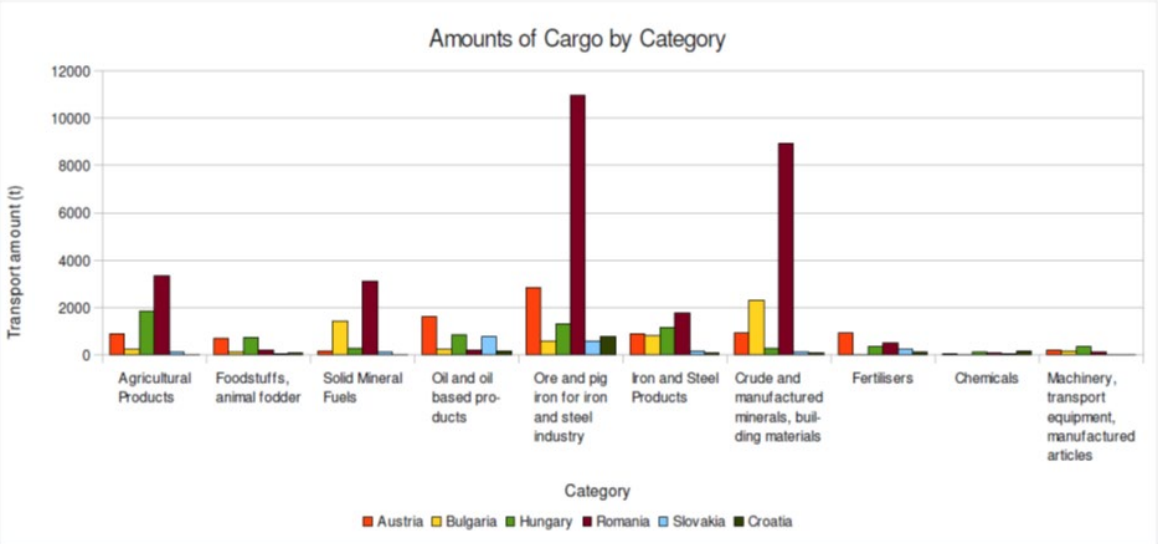
[5] Institutul Naţional de Statistică Transportul portuar maritim de mărfuri şi pasageri 2017, 2018.

marfurile transportate de ambele tari sunt ca aceste sunt in principal materii prime si bunuri cu valoare adaugata scazuta.

Dupa 10 ani in structura marfurilor transportate de transportul fluvial bulgar de asemenea se remarca schimbari esentiale. Ponderea cea mai mare o are productia agricola – 40% din marfurile transportate ca masa si 39,9% ca tkm. Un loc important in aceasta grupa au cerealele cu 35% din incarcarile ca masa si 37,1% ca tkm.[6]

Volumul lucrarilor efectuate in porturi se masoara prin masa incarcaturilor procesate in ele. Masa totala a acestor incarcaturi in Bulgaria in perioada 2012 -2016 fluctuiaza intre 3 831 si 4 568 mii t. Din punct de vedere structural, schimbarile din aceasta perioada constau in scaderea importurilor si fluxurilor de pe coasta in favoarea cresterii semnificative a exporturilor de marfuri. Aceste volume sunt insa mult mai mici decat posibilitatile de transfer a tuturor porturilor din sectiunea bulgara navigabila a fluviului Dunare, care indica existenta unei capacitati disponibile neutilizate.

Graficul 2. Tipuri de marfuri transportate pe fluviul Dunarea



Amount of Cargo by Category	Cantitatea de incarcaturi pe categorii (tip)
Transport amount	Cantitatea transportata
Agricultural Products	Productie agricola
Foodstuffs, animal fodder	Alimente si furaje
Solid mineral fuels	Combustibili minerali solizi
Oil and oil-based products	Petrol si produse petroliere
Ore and pig iron for iron and steel industry	Minereu si fonta pentru siderurgie
Iron and steel products	Produse din fier si otel
Crude and manufactured minerals, building materials	Produse minerale crude si prelucrate, materiale de constructii
Fertilisers	Ingrasaminte
Chemicals	Chimicale
Machinery, Transport equipment, manufactured articles	Masini, echipamente de transport, articole fabricate
Category	Categorie

Sursa: ZKR Marketobservations, 2007.

[6] Date Eurostat.

Tabelul 3. Sarcini incarcate si descarcate in porturile fluviale din Bulgaria, pe destinatii, mii tone

	2012	2013	2014	2015	2016
Total	**3894**	**3831**	**4529**	**4568**	**3993**
Import - descarcate	1682	1529	1688	1708	1312
Export - incarcate	805	1112	1410	1165	1459
Costier	1407	1190	1431	1695	1222

Sursa: Institutul National de Statistica, 2018

Transportul de pasageri pe fluviul Dunare are o importanta secundara in activitatea de transport. Dupa anul 2013, tara noastra dispune de o singura nava de pasageri cu 243 de locuri. Numarul total de pasageri transportati are tendinta de scadere, ajungand in anul 2016 la 94 mii persoane. Pentru comparatia cu anul 2012 acesta era 175 mii persoane. Distanta medie a transportului de pasageri este de numai 1 km. Trebuie remarcat ca dinamica acestui indicator este influentata de intrarea in functiune a Podul Dunarii 2, precum si de alti factori socio-economici.

Numarul scazut de pasageri transportati duce la o scadere a numarului de pasageri care trec prin porturile bulgare. Din anul 2008 aceasta cifra sa diminuat continuu, scazand in anul 2015 de 2,5 ori in comparatie cu anul 2008.[7]

In Romania, pentru anul 2016 statisticile arata ca sunt transportati in cadrul granitelor nationale, 156 mii de pasageri.[8]

In anul 2014 [9] numarul de intreprinderi, al caror obiect de activitate este legat de transportul fluvial si manipularea marfurilor si transportul de pasageri pe Dunarea in Bulgaria, este de 31, iar in Romania – 126. In ele sunt angajati: in Bulgaria 900 de persoane si in Romania 2000, iar cifra de afaceri in anul 2015 [10] in Bulgaria este de 42 milioane de euro si 102 milioane in Romania.

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[7] МТИТС. Strategia integrata de transport pentru perioada pana la anul 2030 г., S., 2017 г.
[8] SC FIP CONSULTING SRL. Study on Waterways Planning in CBC Region, 2018.
[9] Date din UE, EU Transport In Figures – Statistical Pocketbook 2017.
[10] Tot acolo.

1.3. Starea infrastructurii portuare in regiunea transfrontaliera

Porturile fluviale sunt analizate ca sisiteme complexe dinamice care au o destinatie definita, indeplinesc anumite functii, sunt compuse din elemente complexe si sunt legate de celelalte moduri de transport.[11] Pentru ca aceste sisteme sa functioneze cu succes, este necesar ca componentele acestora sa functioneze in sinergie.

Fiecare port indeplineste anumite functii de baza si functii auxiliare. Cele de baza sunt receptia, manipularea si transbordarea marfurilor livrate; depozitarea si distributia incarcaturilor receptionate; controlul vamal si monotorizarea proceselor; verificarea si procesarea documentelor de transport care insotesc marfa si altele. Cele auxiliare sunt furnizarea diverselor tipuri de servicii, cum ar fi incarcarea navelor cu combustibil, apa si provizii (buncherare) intretinerea si repararea navelor si a unitatilor de transport, curatarea navelor (deseuri, ape de santina, etc.) si altele.

O conditie importanta pentru calitatea functiilor portului fluvial este faptul ca elementele sale componente sa indeplineasca anumite cerinte tehnice, tehnologice si organizationale.

Elementele tehnice includ diferite tipuri de echipamente, locuri de depozitare a marfurilor si zone de acostare a navelor. Includ si numarul de dane, adancimea liniei de coasta, numarul de dispozitive de incarcare si descarcare, dimensiunile suprafetelor deschise si inchise de depozitare. Componentele tehnologice determina destinatia si specializarea portului. De importanta sunt mijloacele tehnice de manipulare, descarcare si transbordare a diferitelor tipuri de marfuri (in vrac, voluminoase, lichide, incarcari supradimensionate si containere). Elementele organizatorice sunt direct legate de statutul portului – intreprinderea publica de stat sau proprietatea unei persoane particulare.

In prezent mecanizarea principala portuara in functiune include macarale portale electrice cu sageti, care sunt vechi (30-50 de ani). Macaralele moderne achizitiunate sunt putine la numar. Chiar la manipularea portcontainerelor in principal sunt utilizate macaralele portuare cu sageti in loc de macarale specializate Gantry. In multe porturi, de multi ani nu a fost achizitionata nici o mecanizare de chei noua.

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[11] PINE, Prospects for Inland Navigation within Enlarged Europe, full final report, 2004, p. 150.

Principalele obiective si sarcini care trebuie indeplinite in realizarea viitoarelor solutii in proiectele de dezvoltare a schemelor de transport si a tehnologiilor in terminalele portuare, trebuie sa fie orientate in directia echipamentului tehnologic de nivel tehnic contemporan, sa corespunda conditiilor si volumului muncii, care la randul sau sa asigure fiabilitate si siguranta ridicata pentru personalul si mediul inconjurator, precum si mentinerea calitatii comerciale si de utilizare a bunurilor in timpul manipularii acestora.

Este necesara monitorizarea permanenta a starii infrastructurii portuare si a modalitatilor de exploatare ale acesteia – incarcarile de materialele stocate si cu mecanizarea depozitelor separate si zonelor de transbordare, sa nu depaseasca limitele maxime admise, si luarea de masuri rapide si adecvate cand sunt constatate incalcari, care ar putea asigura o infrastructura de transport sigura care sa garanteze securitatea si siguranta procesului de transport. In plus, fara indoiala ca o retea strategica nationala portuara mai bine gestionata are potentialul de a economisi timpul de manipulare a marfurilor si a pasagerilor, contribuind la o mai mare rentabilitate economica a investitiilor (investitii la timp si in urmare optimizarea generala a utilizarii retelei).[12]

1.4. Conectivitatea regiunii prin infrastructura de transport terestru

Porturile interne faciliteaza combinarea diferitelor moduri de transport – caile navigabile interioare, drumurile si caile ferate care functioneaza ca lanturi logistice multimodale. Transportul feroviar si cel rutier actioneaza ca parteneri ai transportului fluvial pentru transferul de marfuri si pasageri inainte si dupa porturile care indeplinesc rolul de interfata de baza. In ultimele decenii porturile dunarene au suferit o transformare esentiala de la porturi conventionale interioare la centre moderne de logistica. In completare la functia sa principala de centre de transbordare si locuri de stocare, astazi porturile oferea o gama larga de servicii logistice, inclusiv puneri in functiune, distributia si logistica proiectelor. Datorita faptului ca acestea servesc ca unitati de productie, precum si ca centre de colectare si distributie de marfuri, ele sunt extrem de bine integrate in economiile regionale si contribuie semnificativ la cresterea economica si la crearea de locuri de munca. Cele mai importante trei zone portuare in ceea ce priveste volumul de transbordare pe fluviul Dunare

[12] Strategia integrata de transport pentru perioada pana la anul 2030

sunt Izmail (Ucraina), Linz (Austria) si Galati (Romania). Un loc important il ocupa portul Constanta din Romania. Acesta este conectat la Dunarea prin canalul Dunare-Marea Neagra si joaca un rol important ca portal pentru transfer de marfuri pentru Marea Neagra, facilitand astfel comertul cu Asia, Orientul Apropiat si regiunea Marii Negre.

Regiunea transfrontaliera Romania-Bulgaria este accesibila datorita fluviul navigabil Dunarea, care face parte din cel de-al VII-lea coridor paneuropean de transport, care prin prin Marea Neagra leaga portul Constanta cu centrele industriale din Europa de Vest si cu portul Rotterdam. La randul sau acesta este traversat de doua coridoare TEN-T, care leaga Europa Centrala si de Nord cu partea sud-estica a continentului si Orientului Apropiat. Pe de alta parte, fluviul Dunare reprezinta o granita solida intre cele doua tari datorita lipsei de infrastructuri de traversare a fluviului, ceea ce impiedica cooperarea transfrontaliera si integrarea socio-economica a teritoriul.

Schema 2. Accesibilitatea si conectivitatea regiunii transfrontaliere Romania-Bulgaria [13]

[13] Strategia comuna pentru dezvoltare teritoriala durabila a regiunii transfrontaliere Romania-Bulgaria, 2015

Lungimea totala a drumurilor din zona de cooperare este de 16 511 km, incluzind drumurile regionale si municipale. Densitatea totala a drumurilor publice este de 22.95 km/100km^2 ceea ce este foarte mic in comparatie cu media UE25 de 110km/100km^2. Densitatea drumurilor de a lungul fluviului Dunare este cu mult sub nivelul national. Reteaua secundara si tertiara este degradata si prost intretinuta pe intreaga zona, existand un risc ridicat de accidente. In plus, anumite drumuri sunt predispuse la inundatii, intr-o mai mare masura acestea sunt in partea romaneasca a Dunarii. Multe drumuri au capacitate insuficienta, care duce la supraincarcare si respectiv la cresterea timpului de calatorie, costurilor de exploatare a vehiculelor, accidentelor si daunele aduse mediului.

Densitatea retelei feroviare in functiune este de aproximativ 46,1 km la 1000 km^2 in Romania si 38.9 km la 1000 km^2 in Bulgaria , care este sub media tarilor din UE (65 km/1000 km^2), ceea ce le situiaza in ultimele doua locuri printre retelele din Uniunea Europeana. Principala legatura a cailor ferate dintre Romania si Bulgaria traverseaza Dunarea pe Podul “Giurgiu-Ruse”, in timp ce cealalta linie feroviara dintre Negru Voda si Kardam are un trafic redus (numai trenuri de marfa si de pasageri).

Din analiza calitatii infrastructurii terestre si feroviare si a serviciilor de transport in ambele tari este clar ca ele se afla mai in spate in clasamentul european, desi transportul rutier are cea mai mare pondere atat in Romania cat si in Bulgaria.

Regiunea este deservita de 3 aeroporturi internationale in Romania: “Constanta” (important in sezonul de vara, cand primeste zboruri de la Paris, Strasbourg, Luxemburg, Bergamo, Pisa), “Craiova” (zboruri din Londra, Köln/Bonn, Bergamo) si „Bucuresti-Otopeni” care este cel mai apropiat de granita. In Bulgaria, cele mai apropiate aeroporturi sunt in Sofia si in Varna, dar o mare parte a populatiei din regiunea de granita a Bulgariei foloseste frecvent aeroportul din Bucuresti.

Reteaua de transport existenta nu asigura o conectivitate buna intre cele doua tari si nici accesul usor la zonele de granite, la coridoarele TEN-T si la coridoarele nationale principale. De fapt prin zona transfrontaliera trece doar o singura autostrada Bucuresti-Constanta (220 km). Acest lucru impiedica dezvoltarea nodurilor intermodale, care sunt de importanta vitala pentru exploatarea potentialului fluviului Dunarea pentru navigatie si pentru dezvoltarea economica a regiunei.

1.4.1. Infrastructura de frontiera intre Bulgaria si Romania

Granita dintre cele doua state este cu lungime de 610 km, din care 470 km este granita de apa pe fluviul Dunarea. Frontiera dintre Romania si Bulgaria este cuprinsa intre Pristol (judetul Mehedinti, Romania) la vest si Vama Veche (judetul Constanta, Romania) la est si are o lungime de 631.3 km.

Granita fluviala este calea navigabila interioara de a lungul fluviului Dunarea cu lungime de 470 km (de la kilometrul 845,650 pana la kilometrul 374,100), limitata intre malul drept al fluviului si linia de demarcatie la granita dintre Republica Bulgaria si Romania, determinata conform Conventiei de stabilire a frontierei dintre Bulgaria si Romania din anul 1908. Granita este intre orasele Vidin (Bulgaria) si Silistra (Bulgaria), respectiv Calafat si Calarasi (Romania). Fluviul Dunarea creeaza mari posibilitati de dezvoltare a transportului fluvial. Este cea mai mare cale fluviala internationala, prin care Bulgaria se conecteaza la tarile din Europa de Vest si Est. Acest lucru creeza conditii pentru relatii comerciale intense cu aceste tari, posibilitati mari pentru turism, precum si pentru alte activitati economice. In regiunea studiata se afla coridorul important de dezvoltare economica Bucuresti-Giurgiu-Ruse-Veliko Tarnovo care ar trebui sa fie utiizat. Exista, de asemenea, perechi de orase pe ambele maluri ale Dunarii: Vidin – Calafat, Bechet – Oryahovo, Turnu Magurele – Nicopol, Calarasi – Silistra, care pot contribui in mod semnificativ prin cooperare la realizarea obiectivelor de dezvoltare regionala, urmand exemplul stabilit de cooperare dintre Giurgiu si Ruse. Beneficii suplimentare pentru regiune pot fi extrase din diversitatea sa culturala si teritoriala. Regiunea transfrontaliera Romania-Bulgaria este accesibila in principal prin fluviul navigabil Dunarea, care face parte din cel de-al VII-lea coridor paneuropean de transport care prin canal la Marea Neagra leaga portul Constanta cu centrele industriale din Europa de Vest si cu portul Rotterdam. La randul sau, aceasta este traversat de doua coridoare TEN-T, care leaga Europa Centrala si de Nord cu partea sud-estica a continentului si Orientul Apropiat. Pe de alta parte, fluviul Dunarea reprezinta o granita solida intre cele doua tari datorita lipsei de infrastructuri de traversare fluviului, ceea ce impiedica cooperarea transfrontaliera si integrarea socio-economica a teritoriul.

Granita terestra are lungime de 139.1 km, trecand prin Dobrogea, intre Calarasi – Silistra si Marea Neagra, separa judetul Constanta (Romania) si regiunile Silistra si Dobrich (Bulgaria) intre fluviul Dunare si Marea Neagra. Incepe de la orasul Silistra si se termina la satul

romanesc Vama Veche, situat pe coasta Marii Negre. Relieful plat din Dobrogea permite construirea de drumuri rutiere si feroviare. Aceasta frontiera este traversata de linia de calea ferata "Razdelna – Kardam – Medgidia - Ungheni" (cel mai scurt drum dintre Bulgaria si CSI) si drumul rutier "Istanbul-Burgas-Varna-Constanta". Aici trece linia de interconexiune electrica din Ucraina si conducta de gaze din Rusia.

Granita maritima are o lungime de 22,2 km si acopera o fasie din apele costiere cu o latime de 20 km. Dezvoltarea frontierei maritime este lrgata de o serie de probleme. In primul rand aceasta este starea ecologica grava a marii Negre, cauzata de marile fluvii Dunare, Dnepru, Nistru si altele. O pondere semnificativa in poluare o au si deseurile de canalizare costiere. Din cauza capacitatii limitate de autocuratare a marii, bogatia de peste a scazut foarte mult, iar schimbarile in biocenoza au proportii amenintatoare. In plus, in partea bulgara legaturile de transport cu interiorul tarii sunt insuficiente, ceea ce duce la utilizarea insuficienta a terenurilor de coasta.

1.4.2. Infrastructura de trecere a frontierei intre Bulgaria si Romania

Exista trei tipuri de infrastructura pentru trecerea frontierei: fluviala, terestra si aeriana.

O bariera serioasa in calea cooperarii reprezinta absenta punctelor de trecere a frontierei. Pe toata lungimea portiunii comune de 470 km a Dunarii exista doua poduri, atat rutiere cat si feroviare, si mai multe puncte de trecere cu bacul.

Tabel 4. Obiecte de infrastructura pentru trecerea frontierei dintre Bulgaria si Romania

Relatia	Tip transport
Vidin - Calafat	Pod (rutier si feroviar)
Lom - Rast	Bac
Oryahovo - Bechet	Bac
Nicopol/Somovit – Turnu Magurele	Bac

Relatia	Tip transport
Svistov - Zimnicea	Bac
Ruse - Giurgiu	Pod (rutier si feroviar)
Tutrakan - Oltenita	Bac
Silistra - Calarasi	Bac
Kardam – Negru Voda	Punctele terestre de trecere se afla pe coasta Marii Negre
Durankulak – Vama Veche, precum si la sud de Denurea, intre Silistra si Ostrov.	
Constanta, Aeroportul International „Mihail Cogalniceanu“	Transport aerian
Craiova, Aeroportul International	Transport aerian
Gorna Oryahovita, Aeroportul International	Transport aerian
Ruse, Aeroportul municipal	Transport aerian

In afara de cele doua aeroporturi internationale din partea romana, o perspectiva buna de dezvoltare regionala reprezinta aeroportul Tuzla din judetul Constanta. Potential de dezvoltare exista si in cele doua aeroporturi, care opereaza in partea bulgara a regiunii transfrontaliere – Gorna Oryahovita si Ruse.

Datele privind traficul de pasageri si frecventa de traversare a punctelor de trecere a frontierei, arata nivele moderate, iar mai putin de 61 % dintre cei care traverseaza frontiera sunt de origine romana sau bulgara. Exceptie fac Podurile peste Dunare “Ruse-Giurgiu” si “Vidin-Calafat” care sunt cele mai utilizate puncte de trecere a frontierei de la traficul romanesc, bulgaresc si international.

In perioada de preaderare au fost facute imbunatatiri la facilitatile de trecere a frontierei cu sprijinul Fondului FAR CT (1999-2004). A fost efectuata reabilitarea infrastructurii feroviare

si a activitatilor legate de siguranta infrastructurii Podului “Giurgiu-Ruse”. Au fost realizate doua proiecte in oglinda in ambele parti ale granitei pentru imbunatatirea conectivitatii prin legaturile de bac si punctele de frontiera Nikopol (Bulgaria) – Turnu Magurele (Romania) si Silistra (Bulgaria) – Calarasi (Romania).

In perioada de programe 2007-2013, au fost implementate proiecte comune romano-bulgare pentru imbunatatirea mobilitatii si accesibilitatii in regiune. Ca urmare a implementarii Programului de Cooperare Transfrontaliera Romania-Bulgaria 2007-2013 se inregistreaza o crestere a mobilitatii si interconectarii in regiunea transfrontaliera – 169 km de drumuri construite/modernizate care deserves circa 500 000 de persoane [14]. Un exemplu de astfel de proiect este “SMART” – “Sustenabilitate, Mobilitate, Accesibilitate in Regiunea Transfrontaliera Constanta – Dobrich – Infrastructura de Transport”. Activitatile sunt orientate catre renovarea unor segmente de drumuri din Dobrich si achizitie echipamente rutiere in Constanta. Municipiul Dobrich a reconstruit segmente importante de drumuri care au rolul de intrare-iesire de transport a orasului in directia spre Constanta.

Cu toate ca fluviul Dunarea are functia de artera principala a sistemului de transport European, ea are o importanta in economie si in transportul regiunei transfrontaliere mai mica decat cea asteptata. In prezent este utilizata doar 10-15% din capacitatea sa de transport. Ea este de importanta pentru dezvoltarea axei de transport fluvial “Rin/Meuse – Main – Dunare” (Axa prioritara TEN-T), care este un traseu importantant pentru transportul de marfuri, care leaga portul “Rotterdam” de la Marea Nordului cu Marea Neagra (in special Constanta si porturile bulgare), precum si porturile fluviale aflate pe caile navigabile interioare.

O problema de baza este capacitatea de trecere a PTF intre Bulgaria si Romania, mai ales in cazul Podului peste Dunarea “Ruse-Giurgiu”, cel mai des folosit pentru traficul de marfa la iesire si la intrare din si in Republica Bulgaria si mai rar pentru traficul de autoturisme[15]. Potrivit raportul Camerei de Comert si Industrie Bulgaro - Romana (CCIBR) este necesar sa se

[14] Raport intermediar privind inchiderea programelor, cofinantate de Uniunea Europeana si de tarile din Spatiul Economic European pentru perioada de programare 2007-2013, precum si pentru progresele realizate in programele pentru perioada de programare 2014-2020 (date la 30 iunie 2016).
[15] *http://www.brcci.eu/problemi-pri-preminavane-na-gkpp-bulgaria-romania*

ia masuri pentru largirea PTF la Ruse si sa fie deschis un nou punct de trecere a frontierei pe partea bulgara a podului. Exista posibilitati, care trebuie analizate, pentru deschiderea de noi linii de bacuri, care ar putea prelua partial traficul de la Podul Dunarii "Ruse-Giurgiu". CCIBR dispune de informatii despre existenta unui interes si pregatire din partea investitorilor, dar este necesara coordonarea pentru analiza posibilitatilor si organizarea punctelor de trecere a frontierei.

Starea conectarilor de transport pentru transportul terestru (rutier si feroviar)

Legatura de transport	Ruse - Giurgiu
Tip transport	Pod (terestru si feroviar)

Schema 3. Harta Podului Dunarea „Ruse-Giurgiu"[16]

Podul Dunarii "Ruse-Giurgiu" (pentru transport feroviar si rutier) a fost construit cu aproape 60 de ani in urma si asigura conectarea cu tarile din Europa de Vest, Centrala si de Est, Grecia, Turcia si Orientul Apropiat. Extrem de intens este transportul feroviar si rutier. Ca urmare a exploatarii indelungate, infrastructura rutiera in apropierea zonei PTF "Podul Dunarii" este in starea extrem de proasta si necesita atat repararea cat si reorganizarea completa a traficului, estetizarea spatiilor inconjuratoare, construirea locurilor de parcare, marcarea si semnalizarea verticala si orizontala. Podul insasi are nevoie acuta de reparatii capitale a partii carosabile si de modernizarea iluminatului.

[16] Strategia municipala de dezvoltare a Regiunii Ruse 2014 -2020

Infrastructura de conectare:

Bulgaria: drumul principal I-5 (E85: Ruse – Veliko Tarnovo), drumul principal I-2 (E70: Ruse – Varna), drumul secundar II-21 (Ruse – Silistra), drumul secundar II-23 (Ruse – Kubrat), si drumul tertiar III-501 (Ruse – Dve Moghili – Byala), ele fiind iesirea si intrarea in Republica Bulgaria prin PTF "Podul Dunarii".

Legatura de transport	Vidin - Calafat
Tip transport	Pod (rutier si feroviar)

Schema 4. Harta Podul Dunarii 2, „Vidin–Calafat" [17]

Podul a fost deschis in anul 2013. Podul are lungime de 1 971 m, incluzand cate doua benzi in fiecare directie, o singura linie electrica de cale ferata si o banda de biciclete. Lucrarile de infrastructura includ construirea unei noi statii de calea ferata de marfuri si 7 km de linie ferata noua, reconstruirea statiei de pasageri existente si construirea a patru noduri rutiere pe doua nivele.

Infrastructura de conectare:

Bulgaria: Drumul principal republican I-1 de la Vidin la Botevgrad leaga Podul cu autostrada "Hemus". Un drum mai scrurt spre Sofia este posibil prin Pasajul Petrohan, care este pictoresc, dar si mai dificil de trecut. Este prevazuta extinderea drumului de la Vidin la Botevgrad la un drum de viteza.

Romania: Ruta mai scurta spre Ungaria prin Drobeta – Turnu Severen, drumul este complet reabilitat si de calitate buna, dar trece prin localitati.

[17] *http://www.vidincalafatbridge.bg/bg/page/115*

Podul Dunarii “Vidin – Calafat” are o importanta cheie nu numai pentru dezvoltarea in viitor a coridorul al IV-lea de transport paneuropean, dar si pentru intreaga axa de transport Sud-Est a Europei si a retelei transeuropene de transport, cu posibilitatile care se vor deschide pentru transport combinat si pentru transferul anumitor volume de trafic de la sosea la calea ferata.

Conexiunea feroviara dintre Bulgaria si Romania se realizeaza prin:

- Trecerea feroviara de frontiera “Ruse-Giurgiu Nord” cu o statie de frontiera comuna pentru trenuri de marfa Ruse Razpredelitelna si pentru trenuri de pasageri Ruse, si cu statia de frontiera “Giurgiu Nord”;
- Trecerea feroviara de frontiera “Kardam-Negru Voda” cu statia de frontiera de schimb “Negru Voda” si statia de frontiera “Kardam”.
- Trecerea feroviara de frontiera “Vidin-Calafat” cu statii comune de frontiera “Vidin patniceska” pentru trenurile de pasageri si “Vidin tovarna” pentru trenurile de marfa, pe teritoriul Republicii Bulgaria si statia de frontiera ‘’Golenti” pe teritoriul Romaniei.

Reteaua rutiera care leaga Bulgaria si Romania este bazata pe urmatoarele drumuri:

- Drumul principa I-7 (Frontiera Romania – s.c. Silistra – s.c. Dulovo – s.c. Sumen – s.c. Preslav – Varbitza – Beronovo – Marasa – s.c. Yambol – s.c. Elhovo – Granitovo - Melnitza – Lesovo – frontiera Turcia);
- Drumul principa I-9 (Frontiera Romania – Durankulak – Sabla – s.c. Kavarna – Balcik – Obrociste – Kranevo – Nisipurile de Aur – Sfantul Konstantin – Varna – Staro Oryahovo – Obzor – s.c. Coasta de Soare – Burgas – Marinka – Zvezdet – Malko Tarnovo - frontiera Turcia).
- Drumul secundar II-29 sectiunea E70 (Dobrich – Gheneral Tosevo – Kardam - Frontiera cu Romania)
- Drumul tertiar III-293 (Alexandria – Koriten – Severnyak, care se afla in intregime pe teritoriul regiunii Dobrich si traverseaza frontiera cu Romania).

Starea conectarilor de transport pe apa

Principalele porturi dunarene pe granita romano-bulgara sunt: in Romania – „Calafat“, „Turnu Magurele“, „Giurgiu“, „Oltenita“, „Calarasi“, si in Bulgaria – „Vidin“, „Lom“, „Oryahovo“, „Svistov“, „Ruse“, „Silistra“. Aceste sunt importante atat pentru transportul de marfuri cat si pentru turistii care sosesc in Giurgiu si Oltenita (pentru vizite de o zi la Bucuresti, Ruse, Svistov, Veliko Tarnovo etc.), dar infrastructura portuara existenta necesita dezvoltare. De asemenea, navigatia pe Dunarea pe tot parcursul anului (inclusiv in perioadele de seceta sau de iarna severa) este o alta problema care necesita atentie si ambele tari au convenit asupra acestui lucru printr-un memorandum, semnat in anul 2012.

Legaturile de bac care functioneaza in prezent sunt “Oryahovo – Bechet”, “Nikopol - Turnu Magurele” si “Svistov – Zimnicea”.

Legatura de transport	Oryahovo – Bechet
Tip transport	Bac

Schema 5. Ruta Bulgaria–Romania prin linia de bac „Oryahovo – Bechet“ [18]

Complexul de bac “Oryahovo” a fost inaugurat in anul 1994 si reprezinta o legatura importanta de transport cu Romania si Europa. Legatura de bac leaga orasele Oryahovo si Bechet. Potentialul de care dispune PTF “Oryahovo “ si ambele bacuri – cel romanesc si cel bulgaresc, permite in 24 de ore sa fie procesate 200 camioane grele la iesire si 200 de camioane grele la intrare. Imbunatatirea conectivitatii frontiere, prin modernizarea porturilor si extinderea infrastructurii nodurilor de transport, va facilita activitatile de cooperare transfrontaliera a regiunilor Danurene de a lungul Dunarii.

[18] *http://www.ferry.bg/*

Infrastructura de conectare:

Bulgaria: directie drumuri secondare II-15 (Vratza – Mizia – Oryahovo) si II-11 (Vidin – Lom – Oryahovo – Gulyanti – Nikopol).

Un proiect important de infrastructura pentru regiunea Pleven este reabilitarea legaturii de tarnsport “Pleven – Kneja – Oryahovo” prin care se poate “destupa” axa la nord cu acces la bacul **“**Oryahovo – Bechet“.

Legatura de transport	Nikopol – Turnu Magurele
Tip transport	Bac

Bacul „Nikopol –Turnu Magurele“ functioneaza din anul 2010. Distanta dintre cele doua maluri este de 800 m, find folosita zona cu cea mai mica latime dintre cele doua tari. Trecerea fluviului cu bacul romanesc este de 8 minute, iar de cel bulgaresc – aproape 15 minute. Platforma romaneasca are o capacitate de 6 ТИR – ruri.

Infrastructura de conectare:

Bulgaria: drum secundar II-52 (Nikopol – Svistov – Byala (Ruse – Veliko Tarnovo), care deserveste teritoriile nordice, costiere ale regiunii Pleven si face parte din drumul panoramic al Dunarii si drumul secundar II-34 (Nikopol - Pleven) – legatura orasului regional Pleven cu portul Nikopol.

Legatura de transport	Svistov - Zimnicea
Tip transport	Bac

Schema 6. Ruta Bulgaria–Romania prin linia de bac „Svistov-Zimnicea“ [19]

RO – RO bac pe fluviul Dunarea intre Svistov (Bulgaria) si Zimnicea (Romania), asigura cea mai scurta legatura intre Bulgaria - Romania – Europa Centrala si de Vest, precum si pentru Sofia, Bulgaria Centrala si de Sud si de acolo pentru Turcia si Orientul Apropiat. Bacul este manipulat de doua nave si fluviul se traverseaza in 15 de minute.

Infrastructura de conectare:

Bulgaria: Abaterile de drum spre bacul “Svistov- Zimnicea” sunt: or. Polski Trambes spre Svistov; gara “Byala” prin Tenovo spre Svistov; pe drumul principal “Sofia – Ruse” in apropiere de satul Balgarene spre Svistov.

Romania: Adaterea de ruta este langa Alexandria sau Rosiori de Vede spre Zimnicea.

1.5 Starea cailor navigabile si a transportului pe fluviul Dunarea in Romania si in Bulgaria

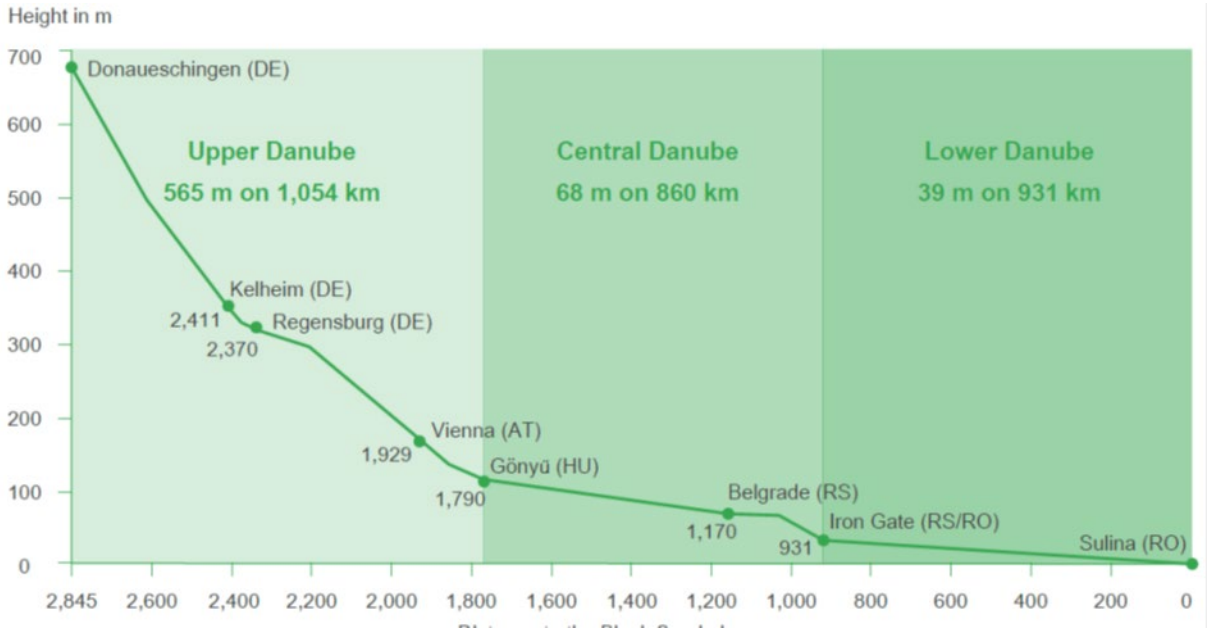
In ceea ce priveste potentialul navigabil, cea mai importanta cale navigabila interioara in Romania si in Bulgaria este fluviul Dunarea, coridorul paneuropean VII. Cu o lungime de 2845 km Dunarea este al doilea ca lungime dintre fluviile Europei, dupa Volga. In una dintre primele sale publicatii hidrografice Comisia Europeana pentru fluviul Dunarea, infintata in anul 1856, afirma ca fluviul Dunarea provine din fuziunea celor doua piraie mari Brigach si Breg in Donaueschingen in Schwartzwald din Germania (acest oras este considerat punctul de plecare al fl. Dunare) si din aceasta fuziune fluviul are o lungime de 2845 km (masurata pana la varsarea in Marea Negra, la km 0, la Sulina). La masurarea distantei de la izvorul

[19] *http://www.ferry.bg/*

bratului mai lung Breg in Furtwangen pana la Marea Neagra la Sulina, lungimea totala este de 2 888 kilometri. Fluviul Dunarea poate fi impartit in trei sectoare principale – Superioara, Mijlocie si Inferioara.

Datorita gradientului ridicat in prima treime a cursului (lungime peste 1 055 kilometri), Dunarea Superioara are caracteristicile unui rau de munte. Din acest motiv, in aceasta parte a fluviului Dunarea se gasesc aproape toate centralele fluviale electrice, care exploateaza gradientului fluxului de apa. Abia dupa schimbarea gradientului in Gönyű, in partea de nord a Ungariei (fluviu - km 1 790) fluviul treptat se transforma intr-un fluviu scazut. In timp ce Dunarea Superioara are o diferenta medie in inaltime putin peste 0,5 metri pe kilometru, diferenta medie in inaltime a Dunarii de Jos este putin peste 4 centimetri pe kilometru. Urmatoarea ilustratie prezinta curba gradientului fluviului Dunarea de la izvorul sau din Donaueschingen pana la gura sa din Marea Neagra.

Figura 2. Curba gradientului Dunarii de Jos, Mijlocie si Superioara



Sursa: via dunau.

Dunarea porneste de la Schwarzwald in Germania si se varsa in Marea Neagra in Romania si Ucraina. Fluviul are o lungime de 2845 kilometri, din care 2245 de kilometri sunt navigabile si leaga 10 tari de langa fluviu. Din istoria timpurie, Dunarea este o cale comerciala

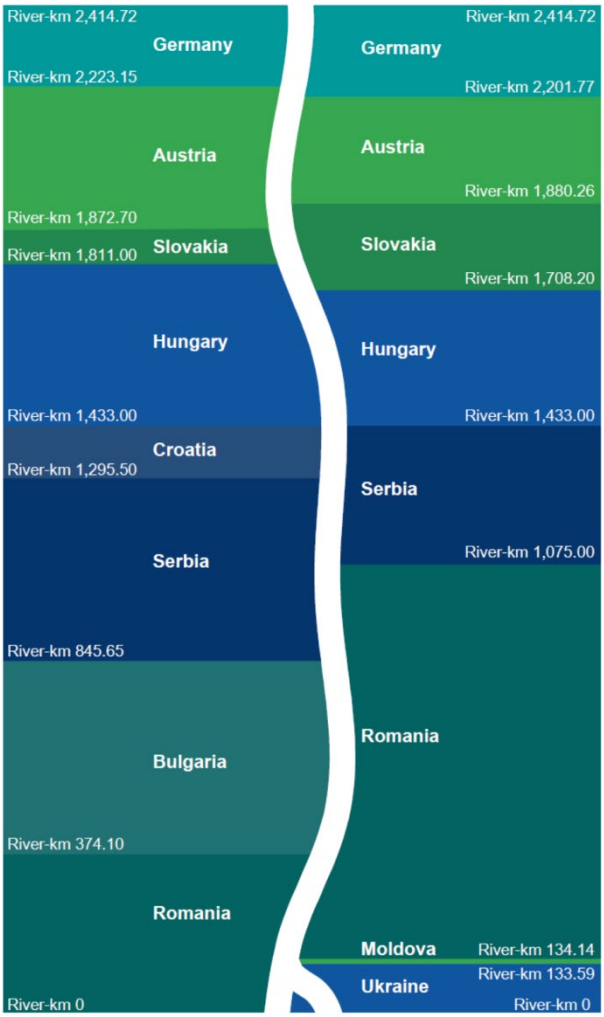
principala in Europa. Este o sursa importanta de energie si apa potabila, precum si un habitat unic de viata salbatica si o zana de agrement.

Zona bazinului hidrografic este aria terenului unde toate apele de pe suprafetele terestre, paraurile si sursele de ape subterana se scurg in raul respectiv. Bazinul fluviului Dunarea acopera 801 463 km ^{2}. Este situat la vest de Marea Neagra in Europa Centrala si de Sud-Est. In ceaa ce priveste paraul mediu, cele cinci parauri principale ale fluviul Dunarea sunt Sava (1,564 m^3 / sec), Tisa / Tisza / Tysa (794 m^3 / sec), Inn (735 m^3 / sec), Drava / Drau (577 m^3 / sec) si Siret (240 m^3 / sec).

Paraul cel mai lung al fluviului Dunarea este Tisa /Tisza/Tysa cu lungime de 966 kilometri, urmata de Prut (950 kilometri), Drava/Drau (893 kilometri), Sava (861 kilometri) si Olt (615 kilometri).

Lungimea cailor navigabile in bazinul Dunarii (Dunarea, inclusiv toti distribuitori navigabili si echipamentul lateral, canalele si paraurile) ajunge la aproximativ 6 300 kilometri. 58% sau 3600 kilometri dintre acestea sunt cai navigabile de importanta internationala, adica cai navigabile cu clasa UNECE a IV-a sau mai mare.

Figura 3. Locatia tarilor de a lungul fluviului Dunarea



Sursa: via dunau.

1.5.1. Cadrul legal si organizatoric de intretinere a navigatiei pe fluviul Dunarea

Obiectivul principal privind intretinerea si optimizarea infrastructurii cailor navigabile a tarilor riverane Dunarii este crearea si intretinerea pe tot parcursul anului a parametrilor senalul navigabil, armonizati pe plan international.

Parametrii minimi recomandati pentru senalul cailor navigabile europene de importanta internatioanala – Inclusiv Dunarea – sunt enumerate in Acordul European privind marile cai navigabile de importanta internationala /Agreement on Main Inland Waterways of International Importance – AGN/ (Comisia Economica a Natiunilor Unite pentru Europa

2010). Legat de adancimea senalului navigabil care trebuie asigurata de administratiile de cai navigabile, AGN face urmatoarele dispozitii: Pe caile navigabile cu valori variabile ale apei trebuie atinsa sau depasita valoarea minima a incaturii navei de 2,5 metri in medie timp de 240 zile pe an. Pentru zonele de nord ale raurilor naturale, caracterizate prin niveluri frecvent variabile datorita conditiilor meteorologice (de exemplu in Dunerea Superioara) se recomanda aceasta sa se refere pe o perioada de cel putin 300 de zile in medie pe an.

In baza Conventiei cu privire la regimul navigatiei pe Dunare, semnata la Belgrad la 18 august 1948 ("Conventia de la Belgrad"), Comisia Dunareana recomanda urmatorii parametri ai senalului navigabil pentru calea fluviala Dunareana: adancimea minima a senalului navigabil 2.5 m (1988), respectiv incarcatura minima a navelor 2,5 m (2013) sub nivel de navigatie redus (LNWL) (adica in medie 343 de zile pe an) pe sectoare cu curgere libera si latime minima a senalului navigabil de 100-180 metri, in functie de caracteristicile specifice ale zonei fluviale respective (Comisie pentru Dunarea 1988 sau Comisia Dunarii 2011).

La data de 7 iunie 2012, ministrii transporturilor din statele riverane Dunarii s-au reunit pentru prima data la Consiliului ministrilor de transport al Consiliului Uniunii Europene din Luxemburg ca sa aprobe o Declaratie privind intretinerea efectiva a infrastructurii cailor navigabile ale Dunarii si a paraurilor sai navigabili. Declaratia a aparut ca reactie la debitul redus al Dunarii in toamna anului 2011, care a evidentiat deficientele unori tari in intretinerea infrastructurilor cailor navigabile. Statele costiere s-au angajat sa mentina parametrii de navigatie a senalului adecvati pentru o navigatie sigura in conformitate cu prevederile "Conventiei de la Belgrad" si pentru tarile care au ratificat Acordul European privind marile cai navigabile interioare de importanta internationala – AGN. Ministrii transporturilor din tarile riverane ale Dunarii se vor intalni o data pe an ca sa monitorizeze deciziile din aceasta reuniune si sa-si coordoneze actiunile in vederea indeplinirii obiectivelor declaratii in cadrul structurii de guvernare a Strategiei Uniunii Europene pentru regiunea Dunarii (EUSDR) si Coridorul retelei transeuropene de transport (TEN-T), responsabil de caile navigabile interioare. Declaratia este semnata de toate statele riverane, cu exceptia Ungariei.

1.5.2. Dimensiunile de gabarit ale caiilor navigabile

Pe caile navigabile interioare, circulatia navelor si a convoaielor nu este permisa pe toata latimea a spatiului de apa, ci numai in acea parte, care este amenajata pentru navigatie si este marcata cu semne speciale de navigatie. Aceasta parte a fluviului este numita calea navigabila. Aceasta se caracterizeaza prin adancime – $h_{кп,}$ latime - $B_{кп,}$ raza de curbura – R_{min}, inaltimea spatiului navigabil liber si liniile de aer. Acestea sunt gabaritele caiilor navigabile.

Pentru a garanta siguranta navigatiei, gabaritele cailor navigabile trebuie sa aiba asemenea dimensiuni ca atunci cand trec cele mai mari nave admise pentru navigatie pe o anumita cale sa fie garantata rezerva minima sub ele pana la fund, latimea suficienta pentru intalnire si depasire si raza de curbura necesara.

Adancimea caii navigabile (hкп) se calculeaza ca suma a pescajului navei - hr si rezerva sub chila navei - Δh, stabilita in conformitate cu Regulamentul de navigatie in functie de adancimea caii navigabile:

$h_{кп}= h_г + \Delta h$ (1)

In zona bulgara sunt adoptate urmatoarele definitii si diapazone pentru nivelul apelor Dunarii:

- nivel scazut: sub 200 cm;
- nivel mediu: de la 200 pana la 500 cm;
- nivel ridicat: peste 500 cm.

Latimea caii navigabile (Bкп) pentru traficul unilateral este definita ca suma latimei vasului estimat sau a convoiul de vase (Bc) si rezerva de latime pana la capatul caii navigabile (ΔB1):

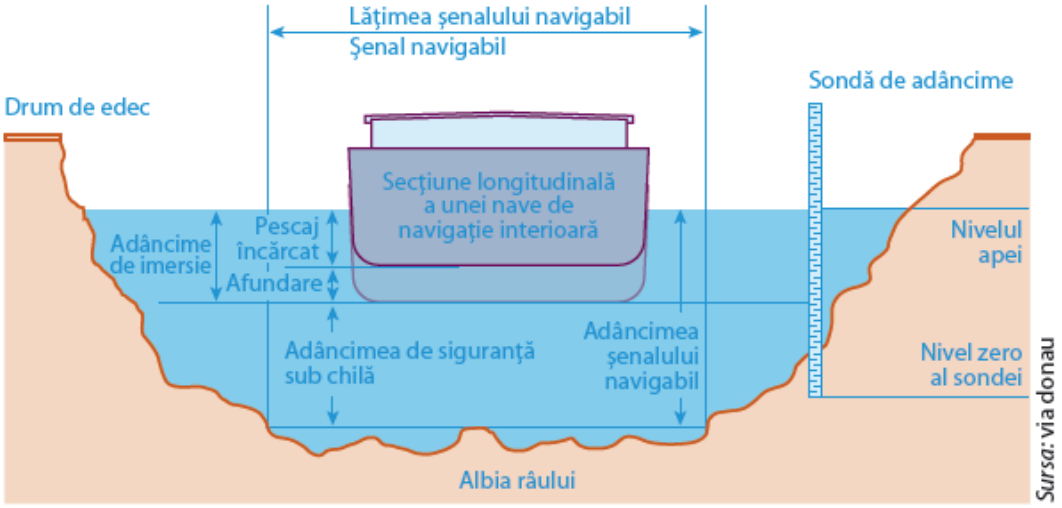
$B_{кп}= B_c + 2\Delta B_1 \approx 2B_c$ (2)

Raza de curbura minima a caii navigabile se determina in functia de lungimea convoiului estimat Lc: $R_{min} \geq 3L_c$ (4)

Inaltimea utila a caiilor navigabile sub poduri si linii aeriene reprezinta distanta de

Figura 3

Terminologia utilizată pentru dimensiunile şenalului navigabil



Parametrii şenalului navigabil (prezentare schematică)

la suprafata apei pana la punctul cel mai scazut al constructiei podului respectiv sau a liniei aeriene respective.

1.5.3. Caracteristicile conditiilor navigabile

Fluviul Dunarea este cel de-al doilea ca lungime (2 845 km) dintre fluviile de pe continentul european si este de o importanta capitala pentru tarile prin care trece: Germania, Austria, Slovacia, Ungaria, România, Bulgaria, Croația, Serbia, Ucraina și partial Elveția, Polonia si Moldova. Ca parte a Canalului navigabil „Rin – Main – Dunare", fluviul faciliteaza comertul international de la Marea Neagra pana la Marea Nordului.

In functie de conditiile de navigatie, Dunarea este impartita in trei sectoare principale:

- **Dunarea de Sus** – de la izvoare pana la Viena – albia nu este larga, dar este suficienta pentru navigatie. In acest sector fluviul este cu cota ridicata intre lunile mai si august [20], iar nivelele cele mai scazute de apa sunt in lunile octombrie si martie;
- **Dunare de Mijloc –** De la Viena pana la Portile de Fier. Fluviul are cotele cele mai ridicate in aprilie si martie, iar apa mica se observa intre august si octombrie;

[20] *Via-Donau,http://www.donauschifffahrt.info/daten_fakten/verkehrsweg_donau/eckdaten/, 2006,*

- **Dunarea de Jos** - De la Portile de Fier pana la Sulina. Fluctuatiiile nivelului apei din acest sector sunt observate in aceleasi perioade ale anului ca si cele tipice pentru Dunarea de Mijloc.

Schema 7. Calea navigabila a fluviului Dunarea

Odata cu deschiderea canalului navigabil “Rin – Main – Dunarea” importanta fluviului pentru regiunea transfrontaliera creste, deoarece tara are posibilitate de a avea o legatura directa cu tarile din Europa de Vest si de Nord. Fluviul Dunarea este caracterizat de un regim de navigatie complicat. Regulile de utilizare a acestuia sunt reglementate de acorduri, conventii si tratate internationale, care garanteaza navigatia libera a tuturor tarilor sub rezerva respectarii anumitori reguli de securitate si siguranta.

Pentru a fi acceptata o sectiune de apa ca navigabila, este necesar ca aceasta sa indeplineasca anumite cerinte, cum ar fi adancimea senalului; latimea cursului de apa, numarul, densitatea si degajarea podurilor, numarul ecluzelor etc. Pe baza acestor indicatori Consiliul European de Ministri a adoptat o decizie[21], conform careia caile navigabile interioare ale Europei sunt clasificate in diferite categorii cu scopul determinarii tipurilor de nave (in functie de parametrii lor tehnici si operationali) care pot fi utilizate in realizarea transportului de marfuri.[22]

[21] *Decizia nr. 92/2 a Comisiei Europene a Ministrilor Tranportului, Bruxel, 1992*
[22] *GIFT TRANSPORT NETWORK PROPOSALS (CORRIDOR VII).*

Tabel 5. Parametrii principalelor categorii de cai fluviale, potrivite pentru navigatie

Clasele cailor navigabile interioare	Dimensiunile navelor			Inaltimea sub poduri
	Lungimea	Latimea	Adancimea pescajului	
De la I pana la III	Pana la 80 m	Pana la 9 m	1.40 – 2.20 m	4.00 – 5.00 m
IV	80 – 85 m	9.50 m	2.50 m	5.25 – 7.00 m
V a	95 – 110 m	11.40 m	2.50 – 2.80 m	7.00 – 9.10 m
V b	172 – 175 m	11.40 m	2.50 – 2.80 m	7.00 – 9.10 m
VI a	95 – 110 m	22.80 m	2.50 – 4.50 m	7.00 – 9.10 m
VI b	185 – 195 m	22.80 m	2.50 – 4.50 m	7.00 – 9.10 m
VI c	270 – 280 m	22.80 m	2.50 – 4.50 m	9.10 m
	195 – 200 m	33 – 34.20 m	2.50 – 4.50 m	9.10 m
VII	285 m	33 – 34.20 m и si mai mult	2.50 – 4.50 m	9.10 m

Sursa: Blue Book: Inventory of main standards and parameters of the E-waterway network.

Conform parametrilor asa definiti si clasificarea cailor navigabile interioare ale Europei, sectorul bulgaresc al Dunarii se incadreaza in clasa a VII-a. Parametrii tehnici ai sectoarelor de apa, din categoriile VI si VII pot asigura conditii de navigatie sigure pentru circulatia navelor, care transporta bunuri de dimensiuni mari, grele si voluminoase, precum si containere, stivuite pe trei sau patru nivele.

In afara de parametrii tehnici enumerati si indicatorii cantitativi care caracterizeaza densitatea si categoria cailor navigabile interioare ale Dunarii, exista factori care au impact asupra segmentelor inguste, si anume:

- Navigarea se se realizeze in orice moment din perioada prevazuta de navigatie;

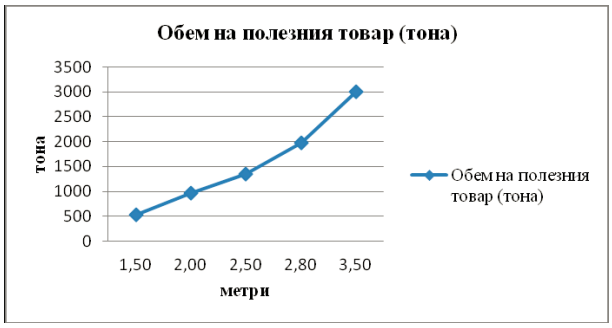
- Perioada de navigatie poate fi mai scurta de 365 de zile pe an numai in cazurile, cand starea anumitei sectiuni navigabile este afectata de conditiile climatice si este posibila formarea de sloiuri;

Prin urmare, calitatea caiilor fluviale navigabile si utilajele lor aferente au o importanta esentiala pentru realizarea regulata si in siguranta a transporurilor de marfuri, deoarece servesc la stabilirea:

- Vitezei de navigare maxima permisa si dimensiunile de gabarit ale navelor;
- Adancimea de pescaj admisa care are impact direct asupra tipului si volumului marfurilor transportate;
- Latimea admisibila a senalului, de care depinde siguranta navigatiei.

Analiza relatiilor dintre starea si particularitatile cailor navigabile inferioare si echipamentele terestre, si caracteristicile tehnice si de exploatare ale navelor este o premiza importanta pentru imbunatatirea productivitatii flotei fluviale. Indicatorii capacitatea de incarcare si coeficientul de utilizare a capacitatii de incarcare au impact direct asupra performantelor operatorilor si indirect asupra valorii costurilor variabile.

Figura 4. Volumul sarcinii utile transportate si adancimea senalului navigabil [23]

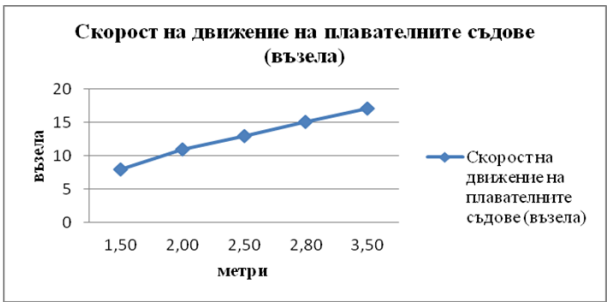


Este observata o relatie direct proportionala intre volumul sarcinii utile transportate si adancimea senalului navigabil . Aceasta depindenta permite sa se traga concluzia ca navele cu o capacitate de incarcare si o adancime de pescaj mai mici sunt utilizate cand conditiile navigabile nu sunt favorabile, adica in cazul cand valorile parametrilor tehnici ai senalului sunt sub limitele de siguranta.

23 GIFT TRANSPORT NETWORK PROPOSALS (CORRIDOR VII)

La fiecare imbunatatire a caracteristicelor tehnice ale cailor fluviale si a facilitatilor de la sol creste adancimea pescajului navei si se realizeaza un impact invers proportional asupra valorii totale a costuriloe variabile.

Figura 5. Viteza de deplasare a navelor (noduri) [24]



Dependenta direct proportionala este observata si la impactul adancimii senalului asupra vitezei de mers a navelor. Imbunatatirea conditiilor de navigatie este insotita de posibilitatea de a fi realizate viteze mai mari de navigare a navelor.

Cresterea vitezei de navigare este un factor care are un impact pozitiv asupra regularitatii transporturilor si asupra duratei totale de deplasare a navelor. Imbunatatirea acestor indicatori calitativi are o mare importanta pentru sporirea eficientei transportului de marfuri prin transportul fluvial.

Conditiile de navigatie pe caile navigabile interioare ale Dunarii sunt influentate si de fluctuatiile sezoniere a nivelul fluviului (apa inalta, apa scazuta, formarea de sloiuri) si existenta sectoarelor inguste pe calea navigabila. Controlarea acestor fenomene in multe cazuri este imposibila si are un impact negativ asupra navigatiei. In anumite perioade ale anului, nivelul fluviului Dunarea fluctuiaza intr-un grad diferit in diferitele sectoare, datorita caracteristicilor specifice ale conditiilor climatice si geoologice.

In sectiunea bulgara a fluviului Dunarea exista fluctuatii semnificative in adancimea admisibila de pescaj a navelor. Exista perioade in care restrictiile privind navigatia pe Dunarea sunt extrem de lungi, ceea ce duce la reducerea fluxului de marfuri din si spre Bulgaria si redirectionarea realizarii transportului de marfuri cu alte moduri de transport. In perioada de 10 ani de studiu, intre 12% si 18 % din zilele anului, sectiunea bulgara a fluviul Dunarea era nepotrivita pentru navigare sigura.

[24] *Sursa: Comisia Dunareana*

Prezenta apelor scazute in anumite locuri in lunile de vara ale anului, impune necesitatea de reincarcare a navelor fluviale cu scopul de a fi redusa adancimea lor de pescaj, care la randul sau prelungeste termenele de livrare si scumpeste serviciile de transport.

Formarea sloiurilor este un alt fenomen care are impact negativ asupra ritmului si eficienta transporturilor de marfuri. Aparitia unor astfel de cazuri de forta majora sunt insotite de cresterea valorii costurilor variabile a operatorilor fluviali si diminueaza cererea, datorita cresterii pretului serviciilor de transport.

O alta slabiciune a sectorului transfrontalier al fluviului Dunarea este prezenta zonelor inguste. Aceste cai navigabile cu importanta internationala care apartin sistemului European de cai navigabile interioare si ale caror parametrii nu corespund celor aprobati pentru clasificare in categoria respectiva sunt definiti ca blocaje (bottlenecks) [25]. Prezenta blocajelor in fluviul Dunarea este un indicator al calitatii nesatisfacatoare a cailor navigabile si de navigatie dificila.

Adancimea insuficienta a senalului limiteaza utilizarea rationala a capacitatii navelor, motiv pentru care este posibil sa fie transportate numai anumite tipuri de marfuri, iar acest lucru este legat de pierderea pozitiilor pe piata transportului fluvial interior si reducerea cererilor consumatorilor.

In domeniul transportului pe caile navigabile interioare, intretinerea curenta a cailor de navigatie, inclusiv situatia de circulatie pe fluviul Dunarea sunt realizate de Agentia Executiva pentru Exploatarea si Intretinerea fluviului Dunarea (IAPPD) in conformitate cu regulile Conventiei privind regimul de navigatie (MO, nr. 112/1949) si Acordul dintre Guvernele Republicii Bulgaria si Republicii Romania din anul 1955, in temeiul art. 77, 82 si 83, al. 2 din Legea privind spatiile maritime, caile navigabile interioare si porturile Republicii Bulgaria. Conform Conventiei nu se stabilesc nici un fel de taxe de tranzit pentru nave, cheltuielile de intretinere fiind finantate de la Bugetul de Stat.

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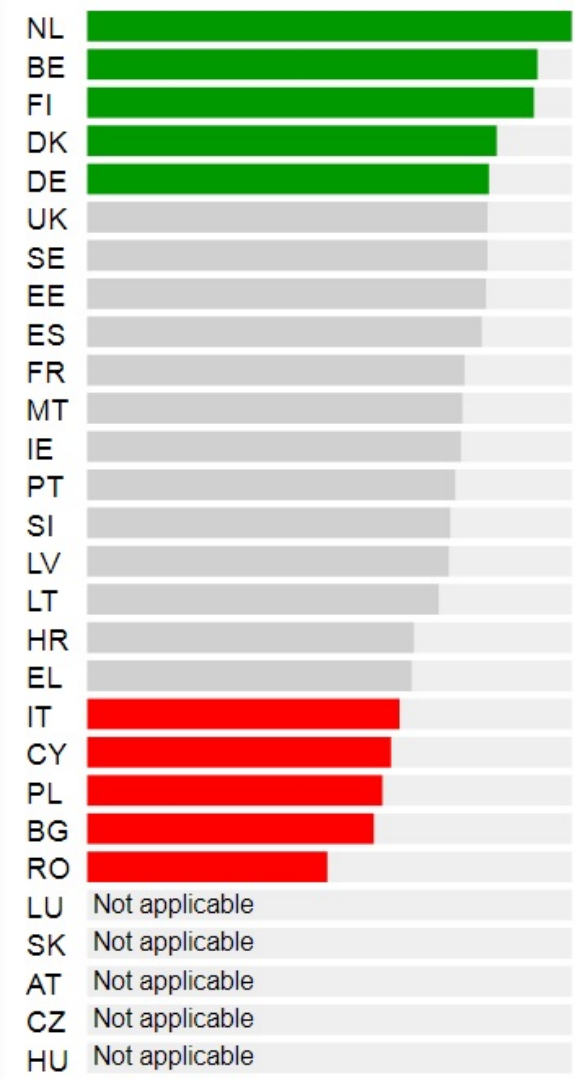
[25] *Inventory of Main Standards and Parameters of the E Waterway Network, "Blue Book", second revised edition, UNECE, 2012, p. 3.*

1.5.4. Probleme in constructia si intretinerea infrastructurii transportului pe apa

In ceea ce priveste calitatea infrastructurii portuare in anul 2016 Bulgaria ocupa locul - 70, iar Romania locul – 98 din 137 de tari, conform unui Raport privind competitivitatea globala pe perioada 2016-2017. In ceea ce priveste cea mai buna infrastructura portuara Olanda ocupa pozitie de lider nu numai in Europa ci si pe scara mondiala.

In cadrul Uniunii Europene cele doua state din regiunea transfrontaliera si printre statele-membre ale UE- Bulgaria si Romania se situiaza la unele din ultimele locuri in ceea ce priveste calitatea infrastructurii portuare.

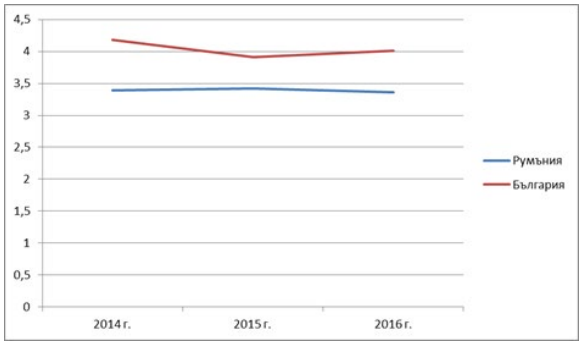
Figura 6. Evaluarea calitatii infrastructurii portuare in UE (2015-2016) [26]



Potrivit datelor Eurostat, aprecierea primita de Romania pentru perioada 2013–2014 este de 3.39; 2014–2015 este de 3.42, iar pentru perioada 2015-2016 este de 3.36, ceea ce situiaza Romania pe ultimul loc in clasament.

Bulgaria este imediat inaintea Romaniei, observandu-se o deteriorare a indicatorilor de rentabilitate. Aprecierile primate sunt: 2013–2014 – 4.18, pentru 2014–2015 – 3.91, pentru 2015–2016 – 4.01.

Figura 7. Dinamica indicatorului de calitate a infrastructurii portuare in Bulgaria si in Romania



[26] *Sursa: Eurostat*

Densitatea infrastructurii portuare existente in regiunea tansfrontaliera este ridicata si exista capacitati portuare disponibile. Majoritatea porturilor insa sunt construite la inceputul secolului trecut, ceea ce are un impact negativ asupra starii lor tehnice. Principalele probleme legate de dezvoltarea porturilor sunt legate de lipsa investitiilor suficiente pentru intretinerea si dezvoltarea infrastructurii portuare in anii precedenti, facilitati mecanice si echipamente de transbordare invechite, starea proasta a cheiurilor.

Porturile dispun de suficienta capacitate pentru operare marfurile generale, vrac solid, vrac lichid, containerele si unitatile RO-RO. In prezent, cu ecihpamentul de reincarcare disponibil, este utilizata aproximativ 60 % din capacitatea infrastructurii.

Tendinta de dezvoltare a porturilor este legata de concesionarea si liberalizarea serviciilor portuare, tinand seama de necesitatea imbunatatirii conditiilor tehnice ale infrastructurii portuare si zonele de apa.

1.5.5. Surse de finantare a constructiei infrastructurii transportului fluvial in regiunea transfrontaliera

Prezentarea surselor de finantare trebuie legata de initiativele strategice ale CE in domeniul transportului, relevante pentru subiectul acestei analize, in indeplinirea carora au fost create si se aplica diferitele instrumente si fonduri financiare.

Strategia UE pentru regiunea Dunarii (EUSDR)

Strategia UE pentru regiunea Dunarii este a doua strategie macroregiunala a UE, adoptata de Comisia Europeana in anul 2010 si sprijinita de Consiliul European in anul 2011.

Strategia reuneste 13 tari, situate de-a lungul fluviului Dunarea, si cuprinde o suprafata in care locuiesc peste 112 milioane de locuitori, sau o cincime din populatia UE. Noua dintre tarile participante sunt membre ale UE: Austria, Bulgaria, Germania, (Baden-Wurttemberg, Bavaria), Romania, Slovacia, Slovenia, Ungaria, Croatia si Republoca Ceha. Patru din tarile participante sunt in afara UE: Bosna si Hertegovina, Moldova, Serbia, si Ucraina (Odesa, Ivano-Frankivsk, Cernauti si regiunea Zakarpatskaya).

Strategia este orientata catre patru puncte principale, iar in cadrul fiecarui punct domeniile prioritare sunt definite prin activitatile specifice de cooperare.

Conectarea regiunii:

- Imbunatatirea mobilitatii si conexiunile de transport;
- Promovarea utilizarii mai large a energiei regenerabile;
- Promovarea activitatilor culturale si turistice.

Protectia mediului inconjurator:

- Recuperarea si mentinerea calitatii apei;
- Gestionarea riscurilor de mediu;
- Protejarea biodiversitatii, conservarea peisajelor si calitatii aerului si solului.

Atingerea bunastarii:

- Dezvoltarea societatii bazate pe cunoastere;
- Acordare sprijin pentru competitivitate intreprinderilor;
- Investitii in oameni si abilitati.

Consolidarea regiunii:

- Cresterea capacitatii institutionale si a cooperarii;
- Activitati in comun in scopul consolidarii securitatii si luarea de masuri in ceea ce priveste criminalitatea organizata si crima grava.

Rezultatele obtinute pana in prezent sunt urmatoarele:

- Din indeplinirea EUSDR este evident ca strategia da rezultate. Datorita strategiei au fost lansate sau finalizate cateva noi proiecte majore macroregiunale (de exemplu in domeniul navigatiei si schimbarile climatice). Prin reunirea unor tari diferite din diferite nivele, EUSDR a contribuit pentru cultura mai buna a cooperarii si a sprijinit dezvoltarea unui dialog multicultural. De asemenea a contribuit la cresterea coordonarii si la dezvoltarea interactiunii dintre politici si institutii la nivel national, si a sprijinit cooperarea tematica consolidata cu tarile din afara UE, precum si intre organizatiile internationale existente din regiune.

Exemple specifice:

- Gestionarea coordonata a riscurilor prin proiectele SEERISK reduce semnificativ riscul pagubelor produse de inundatii;
- Au fost eliminate unele segmente inguste pentru navele pe fluviul Dunarea si securitatea navigatiei este imbunatatita prin proiecte, precum **FAIRWAY и DARIF — Forumul pentru fluviul Dunarea. EU Strategy for the Danube Region**
- Dialogul cultural si participarea activa a tinerilor in societatea civila in regiunea fluviului Dunarea sunt promovate prin proiecte, precum **"Responsabilizarea tinerilor – conectarea Europei"**

Strategia "Transport 2050"

Strategia "Transport 2050" este un plan aprobat pe termen lung pentru cresterea mobilitatii si reducerea emisiilor si dependenta de petrol. Pentru realizarea acestui rezultat, sunt necesare schimbari in sistemul European de transport. Printre obiectivele-cheie pana la anul 2050 se numara: in orase sa nu mai circule autovehicole alimentate cu combustibili conventionali; in aviatie sa fie utilizati carburanti cu emisii scazute de carbon; emisiile provenite din navigatie sa fie reduse; transportul de pasageri si marfuri pe distantele interurbane mijlocii sa fie efectuat prin transport feroviar si pe apa; si ca rezultat din toate acestea, emisiile de transport sa scada cu 60%. Obiectivul comun este crearea unui spatiu unic European de transport, cu o mai mare competitivitate si o retea de transport complet integrata care leaga diferitele tipuri de transport si permite o schimbare radicala a schemelor de transport de calatori si de marfa. In acest scop s-au marcat initiative concrete pentru urmatorii zece ani, una dintre care este reducerea pana la anul 2030 la jumatate a autoturismelor in transportul urban care utilizeaza combustibili conventionali, iar pana la anul 2050 – treptat retragerea lor totala de la utilizarea in orase.

Fondul European de Dezvoltare Regionala a UE (2014-2020) are ca scop consolidarea coeziunii economice si sociale a Uniunii Europene, atingerea unui echilibru intre regiunile sale, prin concentrarea investitiilor asupra catorva domenii cheie prioritare: inovarea si cercetarea, tehnologiile digitale, sprijinul pentru intreprinderile mici si mijlocii si economia

cu emisii reduse de carbon. Actiunile FEDR au ca scop sa atenueze problemele economice, sociale si de mediu in zonele urbane, cu un accent deosebit pe dezvoltarea urbana durabila.

Fondul de coeziune al UE vizeaza reducerea diferentelor economice si sociale si promovarea dezvoltarii durabile in statele membre al caror venit national brut (VNB) pe cap de locuitor este sub 90% din media pe UE. Aceasta ofera finantare pentru activitatile din domeniile: retele transeuropene de transport pentru proiecte de interes European, proiecte de infrastructura, mediu inconjurator – pentru proiecte legate de energetica sau de transport cu conditia ca acestea sa aiba un beneficiu clar pentru mediul inconjurator, cum ar fi eficienta energetica, utilizarea energiei regenerabile, dezvoltarea transportului feroviar, sprijinirea intermodalitatii, consolidarea transportului public, etc.

Planul de investitii pentru Europa, aprobat de Consiliul European

la data de 18 decembrie 2014.

Planul este bazat pe trei directii reciproc complementare:

- *Prima* – mobilizarea in urmatorii trei ani a cel putin 315 de miliarde de euro in investitii suplimentare, prin care sa fie marit impactul fondurilor publice si sa fie deblocate investitiile private;

- *A doua* – initiative specifice, pentru a se garanta ca aceste investitii suplimentare satisfac necesitatile economiei reale.

Punerea in aplicare a primelor doua directii la nivel de UE se va realiza prin crearea unui nou Fond European de Investitii Strategice prin care sa fie oferit sprijin pentru riscurile investitiilor pe termen lung si acces sporit la finantarea de risc pentru IMM-uri.

- *A treia* – masuri pentru asigurarea unei previzibilitati mai bune a reglementarilor si pentru eliminarea barierelor din calea investitiilor, astfel incat Europa sa devina mai atractiva pentru investitori.

“Europa 2020”, Strategia Comisiei europene pentru o crestere inteligenta, durabila si favorabila incluziunii, 2010.

“Europa 2020” este o strategie a Uniunii Europene pentru cresterea economica si crearea de locuri de munca, care a fost introdusa pentru a creia conditii de crestere economica *inteligenta* – prin instrumente mai eficiente in educatie, cercetare si inovare, *durabila* – datorita trecerii decisive catre o economie cu emisii reduse de carbon si a unei industrii competitive si *favorabila incluziunii* – cu accent puternic de crearea de locuri de munca si reducerea saraciei. Aceasta stabileste cinci obiective principale care trebuie realizate pana la sfarsitul anului 2020 – in domeniul ocuparii fortei de munca, cercetarii si dezvoltarii, schimbarile climatice si utilizarea energiei, educatiei, incluziunie sociale si lupta impotriva saraciei. Progresele obiectivelor strategiei “Europa 2020” sunt promovate si monitorizate in contextul semestrului European, ciclul anual de coordonare a politicilor economice si bugetare in UE. In anul 2015, Consiliul a adoptat un nou set de orientari integrate – orientari comune pentru politicile economice ale statelor membre si ale Uniunii si orientari pentru politicile de ocupare a fortei de munca a tarilor membre, care inlocuiesc orientarile integrate din anul 2010.

“Orizont 2020’’ este instituit prin Regulamentul (UE) nr. 1291/2013 al Parlamntului European si al Consiliului si reglementeaza normele privind ajutorul UE pentru cercetare si inovare

“Orizont 2020’’ este un program-cadru pentru cercetare si inovare (2014 - 2020). Are ca scop ridicarea bazei stiintifice si tehnologice europene, valorificarea mai buna a potentialului economic si industrial al politicilor privind inovarea, cercetarea si tehnologiile in conformitate cu strategia “Europa 2020”. Pentru atingerea acestui obiectiv sunt prevazute masuri in cadrul a trei prioritati: “Excelenta stiintifica”, “Pozitia de lider in sectorul industrial” si “Provocari sociale”. Programul sprijina activitatile de cercetarea si inovarea prin subventii pentru cercetare, granturi de dezvoltare si inovare, comenzi si instrumente financiare.

Sursele de finantare in perioada de programare anterioara (2007 - 2013), precum si in cea prezenta (2014 - 2020) si in conformitate cu celor prevazute in cadrul *“Strategiei integrate de transport a Bulgariei pana la anul 2030”* si “*Master Planul general de Transport al*

Romaniei" includ granturi din UE, fonduri complementare din bugetele de stat, bugetele municipale, imprumuturi de stat si finantari din sectorul privat.

Sursele pot fi impartite in urmatoarele grupe:

- Finantarea nationala (fonduri nationale);
- Finantarea europeana (fonduri europene);
- Finantarea privata;
- Finantarea nationala (bugete locale si centrale)
- Finantarea public-privata;
- Alte surse de finantare.

Pentru a fi mai clar si avand in vedere dispozitiile de mai sus, sursele de finantare sunt analizate in urmatoarele grupuri:

- **Fonduri publice nationale:**
  - Buget local;
  - Buget central;
  - Fonduri nationale.
- **Fonduri publice externe:**
  - Programe operationale nationale;
  - Fonduri europene;
  - Programe europene.
- **Alte instrumente de finantare**
- **Finantare privata.**

FONDURI PUBLICE NATIONALE

Programul "Imprumuturi suverane de investitii" al Republicii Bulgaria

Programul de Imprumuturi suverane de investitii este resursa disponibila, reglementata printr-un decret privind executarea anuala a bugetului de stat al Republicii Bulgaria si in conformitate cu Legea finantelor publice.

Imprumuturile garantate de stat sunt imprumuturile pe baza contractelor financiare incheiate intre Guvernul Republicii Bulgaria si Institutia financiara respectiva. De credite suverane de investitii pot beneficia - societati de stat si ordonatorii principali de buget.

BUGETE LOCALE SI BUGETUL DE STAT

Variante de finantare a proiectelor din domeniul de infrastructura al fluviul Dunarea, transportul fluvial, inclusiv pentru imbunatatirea conectivitatii cu reteaua TEN-T, sunt bugetele de stat si cele locale ale tarilor partenere – Bulgaria si Romania. Asa de exemplu, proiecte locale de infrastructura, dar proiecte-cheie, pot fi finantate din bugetele districtelor/judetelor in conformitate cu responsabilitatilor autoritatilor locale pentru dezvoltarea transportului, mobilitatea si conectivitatea.

Bugetul de stat permite prin bugetele ministerelor si agentiilor, institutiilor locale si autoritatilor publice, in limitele competentei si responsabilitatii lor cu privire la dezvoltarea cailor navigabile interioare si a infrastructurii portuare, mobilitatea si conectivitatea sa ofere sprijin pentru proiecte de importanta regionala, nationala si transfrontaliera.

FONDURI PUBLICE EXTERNE

Programul operational ”Transport si Infrastructura Transportului” 2014 – 2020

Programul operational ”Transport si Infrastructura Transportului” 2014 – 2020 (POTIT) este unul dintre cele zece programe operationale ale Republicii Bulgaria finantate din Fondurile Structurale si de Coeziune ale UE.

Obiectivul general al POTIT 2014 - 2020 este “Dezvoltarea unui sistem de transport durabil”. Pentru atingerea obiectivului general al POTIT sunt formulate sapte obiective specifice:

- „Atragerea de trafic de calatori si marfuri prin imbunatatirea calitatii infrastructurii feroviare pe Reteua Transeuropeana de Transport“;
- „Eliminarea “segmentelor inguste’’ in Reteua Transeuropeana de Transport“;
- „Cresterea utilizarii transportului intermodal“;
- „Cresterea utilizarii metroului“;

- „Imbunatatirea managementului transportului prin introducerea unor sisteme innovative“;
- „Imbunatatirea managementului retelei feroviare“;
- „Asigurarea conditiilor necesare pentru finalizarea reusita a POT 2007 - 2013 si pentru implementarea POTIT 2014 - 2020, cresterea capacitatii administrative si a sprijinului public“.

Axele prioritare ale programului sunt:

1. „Dezvoltarea infrastructurii feroviare in cadrul „principalei“ Retele Transeuropene de Transport“;

2. “Dezvoltarea infrastructurii rutiere in cadrul Retele Transeuropene de Transport „principale“ si “extinse””;

3. “Imbunatatirea intermodalitatii in transportul de calatori si marfuri si dezvoltarea transportului urban durabil”.

4. ”Inovari in management si servicii – implementarea unei infrastructuri modernizate pentru gestionarea traficului, imbunatatirea sigurantei si securitatii transportului”.

5. Asistenta tehnica.

PROGRAMUL DE COOPERARE TRANSFRONTALIERA INTERREG V-A ROMANIA – BULGARIA, 2014 – 2020

“Interreg V-A Romania – Bulgaria’’ 2014 – 2020 este un program de cooperare transfrontaliera, cofinantat de Uniunea Europeana cu fonduri din Fondul European de Dezvoltare Regionala.

Obiectivul strategic al Programului pentru perioada se concentreaza asupra domeniilor tematice din Strategia “Europa 2020”, legate de schimbarile climatice, prevenirea si gestionarea riscurilor, conservarea si protectia mediului, promovarea eficientei resurselor,

transportul durabil, promovarea ocuparii fortei de munca si sprijinul mobilitatii, cresterea capacitatii institutionale prin incurajarea cooperarii dintre cetateni si institutii.

Regiunile la care se refera sunt 7 judete din Romania (Constanta, Dolj, Olt, Teleorman, Giurgiu, Calarasi, Mehedinti) si 8 districte din Bulgaria (Vidin, Vratza, Montana, Pleven, Veliko Tarnovo, Ruse, Silistra, Dobrich).

Priectele sunt finantate, astfel: 85% din FEDR, 13% cofinantare nationala din cele doua tari partenere (Bulgaria si Romania) si 2% contributie proprie.

Obiectivele tematice selectate sunt formulate in cinci axe prioritare: “O regiune bine conectata”, “O regiune verde”, „O regiune sigura“, „O regiune calificata si inclusiva“, „O regiune eficienta“, care raspund nevoilor si provocarilor regiinii transfrontaliere.

Beneficiarii programului sunt autoritatile nationale, regionale si locale, precum si organizatiile publice, ceea ce este o premiza pentru imbunatatirea cunostintelor si asimilarea bunelor practici de catre organizatiile bulgare si romane in vederea imbunatatirii politicilor lor de dezvoltare regionala si locala.

Sprijin in domeniul de imbunatatire a conectivitatii regiunii la reteaua TEN-T poate fi obtinut in principal pentru instituirea unor mecanisme comune orientate spre solutionarea problemelor transfrontaliere legate de transporturi; facilitarea conectarii nodurilor secundare/tertiare cu infrastructura TEN-T; strategii si planuri de actiune pentru imbunatatirea sigurantei navigatiei pe Dunarea si pe Marea Neagra; renovarea sau imbunatatirea cailor navigabile interne, actiuni de gestionare a riscurilor si de elaborare si punere in aplicare a masurilor de protectie impotriva dezastrelor naturale, actiuni de avertizare timpurie si de reactie in caz de urgenta; crearea sau extinderea mecanismelor

transfrontaliere (acorduri, retele, reglementari, studii, politici, strategii, instrumente de schimb informatii) pentru a spori capacitatea de cooperare.

PROGRAMUL DE COOPERARE TRANSNATIONALA “DUNAREA” 2014 -2020

Programul de cooperare transnationala “Dunarea” 2014-2020” este un instrument financiar care incurajeaza si initieaza idei de poiecte, legate de depasirea provocarilor si nevoilor

comune in directii specifice, care vor aduce beneficii reale oamenilor si vor creea legaturi efective intre autoritatile si organizatiile din regiunea Dunarii.

Regiunile cuprinse in program se afla pe teritoriul a 9 state membre ale UE: Austria, Bulgaria, Republica Ceha, Germania (provinciile federale Bavaria si Baden-Wurttemberg), Croatia, Ungaria, Romania, Slovacia şi Slovenia, dar si din trei tari candidate din afara UE: Bosnia-Hertegovina, Serbia si Muntenegru. Moldova si patru regiuni din Ucraina (Zakarpatska, Ivano-Frankviska, Odessa si Cernauti) pot, de asemenea, sa participe la Programul European de vecinatate.

Beneficiarii din cadrul programului pot fi autoritatile nationale, regionale si locale, precum si organizatiile neguvernamentale si private.

Programul Dunarii se bazeaza pe patru axe prioritare:

O regiune a Dunării inovatoare si responsabila din punct de vedere social

In realizarea initiativei principale a UE privind inovarea si punerea in aplicare a Strategiei ''Europa 2020" in tarile din regiunea Dunarii, Programul acorda o atentie deosebita unui sir de subiecte de inovare, care au o importanta deosebita in domeniul cooperarii, cum ar fi: ecoinovarea, transferul de cunostinte, politici de cluster, inovarea sociala si antreprenoriat calificat, inclusiv aspecte ale inovarii tehnologice si nontehnologice. Dimensiunea sociala in inovari (inovarea sociala, aspecte educationale si abilitati antreprenoriale) este de o importanta deosebita. Cercetarile si inovarea sunt interconectate cu alte obiective tematice care sunt abordate in program.

O regiune a Dunarii responsabila ecologic si cultural

Prin aceasta axa prioritara Programul transnational "Dunarea" 2014-2020 sprijina abordarile comune si integrate pentru conservarea si gestionarea diversitatii valorilor naturale si culturale din regiunea Dunarii, ca baza pentru strategii de dezvoltare durabila si de crestere. Programul prevede investitii in crearea si/sau intretinerea unor coridoare ecologice cu semnificatie transnationala in regiunea Dunarii. Aceasta interventie este direct legata de gestionarea apelor si controlul factorilor de risc, cum ar fi de exemplu, riscurile de inundatii.

In plus, este abordata prevenirea si gestionarea dezastrelor (gestionarea riscului) care sunt legate de riscurile cauzate de ecosistemele deteriorate si de schimbarile induse de om in conditiile climatice.

Conectivitatea sporita a Regiunii Dunarii

In cadrul acestei axe prioritare, programul vizeaza provocari comune, legate de sisteme de transport sigure, adecvate in ceea ce priveste mediul si cu emisii scazute de carbon, inclusiv caile navigabile interioare, porturile si legaturile multimodale, pentru a contribui la mobilitatea regionala si locala durabila, integrarea modala si la transportul inteligent. Programul urmareste, de asemenea, sa sprijine conectivitatea regionala si accesibilitatea echilibrata a zonelor urbane si rurale. O mai buna gestionare a mobilitatii regionale si o mai buna permeabilitate a frontierelor la nivel regional trebue sa garanteze ca zonele urbane si rurale vor beneficia de oportunitatile create de retelele principale de transport, dezvoltate la nivel European. Pe de alta parte, energia reprezinta o problema tipica, unde abordarea transnationala este de o importanta semnificativa pentru garantarea securitatii aprovizionarii tarilor, integrarea pietei si o planificare regionala mai eficienta, precum si impreuna sa fie identificate cele mai critice dezvoltari in infrastructura. Planificarea si coordonarea energetica regionala trebuie sa fie imbunatatite in regiunea fluviului Dunarea in cadrul contextului mai larg al dezvoltarii politicii energetice a UE, pentru a fi garantata securitatea si eficienta alimentarii cu energie. Un alt aspect este dezvoltarea unor sisteme de distributie inteligente, in care domeniul de programare este inca in primele etape. Programul are ca scop sa contribuie, in cadrul domeniului sau specific, la dezvoltarea sistemelor inteligente de distributie a energiei, pentru a creste eficienta investitiilor semnificative ale regiunilor in surse de energie regenerabile, eficienta energetica si retele inteligente.

Buna guvernanta in Regiunii Dunarii

Cooperarea si capacitatea institutionala este obiectivul-cheie si elementul vital al Programului. Capacitatea institutionala nu este doar o sarcina de formare a functionarilor publici, ci priveste modul in care autoritatile publice interactioneaza si ofera servicii

business-ul si cetatenilor. “Buna guvernanta” reprezinta baza si scopul final al creerii capacitatii institutionale. Buna guvernare creeaza incredere si capital social. Tarile cu un nivel ridicat de capital social sunt predispuse sa obtina performante economice mai bune.

Nevoia de eforturi specifice in domeniul “bunei guvernari” a fost identificata dupa analiza capacitatii autoritatilor publice si a altor parti din societate, interesate sa abordeze mai eficient provocarile care sunt de importanta majora pentru regiune. Stabilirea cooperarii institutionale in cadrul Programului ar trebui sa conduca la imbunatatirea cadrului juridic si politic, la dezvoltarea unor strategii si planuri de actiuni, la dezvoltarea capacitatilor comune si la furnizarea coordonata de servicii in domeniile cu provocari sociale majore, cum ar fi politicile pietei de munca, sistemele si politicile educationale, schimbarile demografice si migratia, includerea grupurilor vulnerabile si marginalizate, procesul de planificare a participarii si participarea societatii civile, colaborarea intre orasele si raioanele rurale si parteneriatul, cooperarea in domeniul sigurantei, justitiei si securitatii.

PROGRAMUL DE COOPERARE INTERREGIONALA “INTERREG EUROPA 2014 -2020”

Programul de cooperare interregionala INTERREG EUROPA 2014 -2020 este un instrument de aplicare a politicii de coeziune a Uniunii Europene – o strategie pentru o economie intelegenta, durabila si favorabila incluziunii, care creeaza nivele ridicate de ocupare, productivitate si coeziune sociala.

Obiectivul general al Programului este imbinatatirea implementarii politicilor si programelor de dezvoltare regionala, in special programelor din cadrul obiectivului “Investii pentru crestere si locuri de munca” si dupa caz, programelor din cadrul obiectivului “Cooperarea teritoriala europeana”, prin promovarea schimbului de experienta si absorbtia politicilor intre participantii de importanta regionala.

INTERREG EUROPA este orientata pe intreg teritoriul Uniunii Europene, Norvegia si Elvetia.

In perioada de programare 2014 - 2020, programul lucreaza pe patru subiecte legate de dezvoltarea regionala: „Cercetare, dezvoltare tehnologica si inovare“, „Competitivitatea intreprinderilor mici si mijlocii“, „Economia cu emisii reduse de carbon“, „Mediul inconjurator si eficienta mediului“.

Beneficiarii pot fi organizatii din cele 28 de state membre ale UE, Norvegia si Elvetia, daca sunt autoritati publice nationale, regionale sau locale, alte institutii de drept public (de exemplu, universitati, agentii de dezvoltare regionala, organizatii care sprijina business-ul, etc.), organizatii neguvernamentale.

Specificul acestui program este crearea unei platforme de politica educationala. Scopul este ca intreaga comunitate de politicieni regionali sa aiba acces si sa beneficieze de cunostintele comune din sfera celor 4 teme ale Programului. Platforma creeaza un spatiu pentru continuarea studiilor, transfer de cunostinte, imbunatatirea politicilor regionale europene fara implicare intr-un proiect concret. De asemenea, ajuta la activitatea in retea si la extinderea posibilitatilor de configurare si gestionare a retelelor partenere, oferind suport specializat.

FONDURI STRUCTURALE SI DE INVESTITII EUROPENE (ESIS) IN PERIOADA 2014 - 2020

Acestea includ Fondul de Coeziune si Fondul European de Dezvoltare Regionala. Datorita nivelului ridicat de cunoastere a acestor doua fonduri, aici este prezentata informatia generala despre cele doua fonduri.

Fondul de coeziune (FK) este destinat statelor membre al caror venit national brut pe cap de locuitor este mai mic de 90 % din media UE. Acesta vizeaza reducerea diferentelor economice si sociale si promovarea dezvoltarii durabile. Fondul finanteaza:

- Proiecte de infrastructura din reteaua de transport si energie;
- Activitati legate de protectia mediului;
- Economie cu emisii reduse de carbon.

Fondul European de dezvoltare regionala (FEDR) urmareste sa consolidize coeziunea economica si sociala in UE, prin reducerea decalajelor dintre gradul de dezvoltare a regiunilor Comunitatii. Sprijinul financiar al Fondului este pentru urmatoarele domenii:

- Cercetare si dezvoltare;

- Intreprinderi mici si mijlocii;
- Economie cu emisii reduse de carbon;
- Proiecte de infrastructura in domeniul transportului si al energiei.

De asemenea FEDR contribuie semnificativ la cooperarea transfrontaliera, transnationala si interregionala in cadrul obiectivului European de cooperare teritoriala. Sunt admise si parteneriate cu tarile terte invecinate cu UE, prin intermediul Programelor din cadrul Instrumentului European de vecinatate si Instrumentul pentru Asistenta de Preaderare.

FONDUL EUROPEAN PENTRU INVESTITII STRATEGICE

Fondul European pentru Investitii Strategice (FEIS) este elementul principal al planului de investitii pentru Europa, menit sa stimuleze cresterea economica si competitivitatea in Uniunea Europeana pe termen lung. FEIS prevede utilizarea unui fond comun cu BEI, utilizand instrumente financiare inovatoare, inclusiv obligatiuni si diverse forme de instrumente de finantare a riscului. Sprijinul FEIS poate fi combinat cu subventiile UE prin intermediul Mecanismului pentru interconectarea Europei (CEF) si “Orizont 2020”, precum si fondurile de la ESIS.

Scopul fondului este de a utiliza finantarea publica, inclusiv finantarea din bugetul UE, pentru a mobiliza investitii private pentru o gama larga de proiecte, implementate in UE. Proiectele acopera domenii precum infrastructura, cercetarea si inovarea, educatia, ocrotirea sanatatii, tehnologii de informare si comunicare si altele.

Fondul este o unitate separata si transparenta cu cont separat, gestionata de Banca europeana de investitii (BEI). A fost creat in iulie 2015 printr-un Regulament special.

Incepand din septembrie 2016, Consiliul lucreaza la o noua propunere pentru Fondul European de investitii strategice, care are ca scop modificarea regulamentului FEIS din anul 2015.

Fondul urmareste sa incurajeze participarea investitorilor privati intr-o gama larga de noi proiecte de investitii. Pentru a realiza acest lucru, el preia o parte din risc prin raspundere pentru prima pierderea. Pe baza garantiilor existente in valoarea de 16 miliarde EUR de la

bugetul UE si 5 miliarde EUR de la BEI, scopul este de fi atins un efect de multiplicare de 1:15.

In prezent proiectele acopera transportul, infrastructura energetica si infrastructura in banda larga, invatamantul, ocrotirea sanatatii, cercetarile si finantarea de risc pentru IMM. FEIS este orientat catre proiecte viabile din punct de vedere social si economic, fara distribuire prealabila sectoriala sau regionala.

MECANISMUL DE CONECTARE A EUROPEI

Mecanismul de Conectare a Europei (MCE) este instituit prin Regulamentul (UE) nr. 1316/2013 al Parlamentului European si al Consiliului din 11 decembrie 2013 si cuprinde sectoarele de transport, telecomunicatii si energie.

Mecanismul de conectare a Europei (CEF) este un instrument important al UE pentru promovarea cresterii ecinomice, a ocuparii fortei de munca si a competitivitatiii prin investitii de infrastructura specifice la nivel European.

CEF sprijina dezvoltarea retelelor transeuropene eficiente, durabile si efectiv conectate la retelele transeuropene in domeniile transporturilor, energiei si serviciilor digitale.

Investitiile de la CEF completeaza conectarile lipsa din “coloana vertebrala” europeana de energie, transport si digitala.

CEF este benefica pentru persoanele din toare statele-membre, deoarece face calatoriile mai usoare si mai confortabile, imbunatateste securitatea energetica a Europei, permitand in acelasi timp o utilizare mai larga a surselor regenerabile de energie si faciliteaza interactiunea transfrontaliera intre administratiile publice, businessul si cetatenii.

In completare la subventiilor, CEF ofera sprijin financiar proiectelor prin intermediul unor instrumente financiare inovatoare, cum ar fi garantiile si obligatiunile pentru proiecte. Aceste instrumente creeza o parghie semnificativa in utilizarea bugetului UE si actioneaza ca un catalizator pentru atragerea de fonduri suplimentare din partea sectorului privat si a altor participanti din sectorul public.

CEF este impartit in trei sectoare:

- CEF Energie
- CEF Telecomunicatii si TIC
- CEF Transport

Una dintre prioritatile cheie ale CEF este de a permite si a consolida sinergia dintre cele trei sectoare. Actiunile intersectoriale pot oferi posibilitati de optimizare a costurilor sau a rezultatelor prin unirea resurselor financiare, tehnice sau umane, sporind astfel eficienta finantarii de la UE.

CEF Transport

Mecanismul de conectare a Europei este un instrument de finantare a implementarii politicii europene in domeniul infrastructurii de transport. Scopul sau este de a contribui la construirea unei noi infrastructuri de transport in Europa sau la reabilitarea si modernizarea celei existente.

Obiectivele politicii prevad:

- Finalizarea pana in anul 2030 a retelei principale, structurata in jurul a noua coridoare multimodale ale retelei principale;
- Finalizarea retelei globale pana in anul 2050 pentru a facilita accesul la toate regiunile europene.

CEF Transport se concentreaza asupra proiectelor transfrontaliere si asupra proiectelor care vizeaza eliminarea barierelor sau depasirea legaturilor lipsa in diferitele sectoare ale retelei principale si a retelei globale, precum si pentru prioritati orizontale, cum ar fi sistemele de gestionare a traficului.

CEF Transport sprijina, de asemenea, inovarea in sistemul de transport in scopul imbunatatirii utilizarii infrastructurii, reducerii impactului transportului asupra mediului, cresterii eficientei energetice si cresterii sigurantei. Bugetul total al CEF Transport este de 24,05 miliarde de EUR pentru perioada 2014 - 2020.

TEN-T

Programul TEN-T a fost creat de Comisia Europeana pentru a sprijini construirea si modernizarea infrastructurii de transport in intreaga Uniunea Europeana.

Progranul TEN-T a oferit sprijin financiar pentru realizarea unor proiecte importante de infrastructura de transport, in conformitate cu obiectivul de crestere a competitivitatii europene, crearea de locuri de munca si coeziune.

Proiectele reprezinta toate modurile de transport – aerian, feroviar, rutier si maritim/interior pe apa – plus logistica si sistemele inteligente de transport si includ toate statele membre ale UE.

Participarea este pe baza de concursuri deschise, iar ofertele trebuie prezentate in conformitate cu procedura de concurs stabilita. Participanti eligibili sunt persoanele juridice din statele membre ale UE, precum si din tarile asociate - Norvegia si Islanda.

Forme de asistenta financiara

- *Subventii*

Subventiile sunt destinate acelor proiecte care nu primesc fonduri suficiente din partea sectorului privat. Subventiile reprezinta de la 50% pana la 100% din costurile eligibile.

Costul echipamentelor si al infrastructurii care este considerat de catre beneficiar ca fiind cheltuieala de capital poate fi cheltuiala eligibila in intregime.

Subventiile nu pot avea ca scop sau ca rezultat generarea de profituri in cadrul activitatii (,,principiul non-profit").

- *Achizitii publice*

Contractele publice pot fi atribuite de catre Comisia Europeana sau in comun cu statele membre.

- *Instrumente financiare*

Scopul instrumentelor financiare este de a spori efectul multiplicator al cheltuielilor Uniunii Europene prin atragerea de resurse suplimentare de la investitorii privati.

Instrumentele financiare sprijina proiecte de interes comun, care au o valoare adaugata europeana clara si faciliteaza implicarea sectorului privat in finantarea pe termen lung a unor astfel de proiecte.

Pot fi folosite *instrumente de capital* (de exemplu fonduri de investitii cu accent pe asugurarea de capital de risc) si ìnstrumente de datorie (imprumuturi si/sau garantii, sustinute de instrumente de partajare a riscurilor, inclusiv obligatiuni pentru finantarea proiecte).

Orizont 2020

"Orizont 2020" este un program-cadru al UE pentru cercetare si inovare. Este instituit prin Regulamentul (UE) nr. 1291/2013 al Parlamntului European si al Consiliului si reglementeaza normele privind aplicarea ajutorului UE pentru cercetare si inovare.

"Orizont 2020" are ca scop ridicarea bazei stiintifice si tehnologice europene, valorificarea mai buna a potentialului economic si industrial al politicilor privind inovarea, cercetarea si tehnologiilor in conformitate cu strategia "Europa 2020". Pentru atingerea acestui obiectiv sunt prevazute masuri in cadrul a trei prioritati: "Excelenta stiintifica", "Pozitia de lider in sectorul industrial" si "Provocari sociale". Programul sprijina activitatile de cercetare si inovare prin subventii pentru cercetare, granturi de dezvoltare si inovare, comenzi si instrumente financiare.

ALTE INSTRUMENTE DE FINANTARE

Grupul bancii mondiale

Banca Internationala pentru Reconstructie si Dezvoltare (BIRD) a fost infiintata in anul 1945, ca urmare a acordului incheiat la Conferinta de la Bretton Woods din 1944. BIRD este una din cele cinci institutii care alcatuiesc Grupul Bancii Mondiale, celelalte fiind: Corporatia Financiara Internationala (CFI), infiintata in anul 1956, Asociatia Internationala de Dezvoltare (AID), infiintata in anul 1960, Agentia de Garantare Multilaterala a Investitiilor

(AGMI), infiintata in anul 1988 si Centrul International de Reglementare a Diferendelor din Domeniul Investitiilor (CIRDDI), infiintat in anul 1966.

Principalele forme de sprijin si finantare din partea organizatiilor individuale in cadrul Grupului Bancii Mondiale sunt supuse unor obiective si prioritati comune: reducerea saraciei, stimularea dezvoltarii economice si sociale si imbunatatirea conditiilor de viata a populatiei. Aceasta determina si amploarea sectoriala larga si specifica finantatii Bancii Mondiale, precum si rolul sau in comunitatea financiara internationala ca un grup de organizatii, care acorda sprijin in toate sectoarele economice – de la infrastructura la sfera sociala. Atunci cand ofera sprijin financiar, ele iau in vedere nu numai criteriile pur comerciale si economice pentru eficienta si rentabilitate dar si criteriile legate de promovarea reformelor pozitive si a dezvoltarii durabile. Din acest motiv, in afara de domeniile traditionale, organizatiile Grupului Bancii Mondiale reprezinta sursa principala de finantare in activitati de interes public cu rentabilitatea scazuta si irecuperabila – servicii sociale, ocrotirea sanatatii, invatamant, dezvoltarea capitalului uman, protectia mediului, etc.

BIRD este principala organizatie a Grupului Bancii Mondiale si tinand cont de bunele practici si buna gestionare, are rating de imprumutator de bunatate foarte buna care ii permite sa-si finanteze activitatile in conditiile cele mai bune ale pietelor financiare internationale. Acest lucru permite BIRD sa furnizeze conditii relativ subsidiare si mai favorabile atunci cand acorda imprumuturi tarilor sale membre. Banca ofera finantare numai guvernelor si structurilor sub-guvernamentale sau cand exista garantie de stat de catre statul-membru.

Conditiile financiare de baza, in care BIRD crediteaza debitorii sai, in prezent, includ credite cu o scadenta medie ponderata de pana la 18 ani, cu o durata de rambursare totala de pana la 30 de ani, taxa initiala si rate ale dobanzilor variabile cu posibilitate de fixare a componentelor separate sau aplicarea instrumentelor de gestionare a riscurilor valutare de curs si alte riscuri. Bulgaria a aderat la BIRD cu capital social subscris de 521,5 milioane USD (aproximativ 0,3% din totalul de capital subscris). Functiile de administrator in organizatiile din cadrul Grupului Bancii Mondiale sunt indeplinite de ministrul finantelor, iar de adjunct al administratorului – de viceguvernatorul BNB.

Sprijinul pentru tari ca Bulgaria si Romania se realizeaza in principal sub forma fondurilor structurale si de investitii furnizate la nivel de stat, sau in prezenta unei garantii de stat. Pe

langa creditarea BIRD asigura granturi din fonduri proprii sau gestionate de catre Banca si acorda asistenta analitica si de consultanta in diferite domenii cheie.

Activitatile CFI si AGMI in tara de la apartenenta la ele este de o intensitate diferita si este orientata catre sprijinul investitiile particulare “pe verde” (incusiv si prin participare la capitalul social), credite de investitii pentru proiecte individuale in sectorul privat si acordarea de garantii pentru investitii straine.

Sfera investitiilor si valoarea fondurilor se stabilesc prin semnarea unui Cadru de parteneriat, care abordeaza domeniile concrete in conformitate cu nevoile identificate ale tarii-partener. Ultima perioada de finantare este 2017 - 2022.

BANCA EUROPEANA DE INVESTITII

BEI ofera finantare pentru proiecte care contribuie la realizarea obiectivelor UE in interiorul si in afara Uniunii. Tarile UE in comun sunt proprietarii BEI. Scopul bancii este:

- Cresterea potentialului Europei in ceea ce priveste locurile de munca si ocuparea fortei de munca;
- Sprijinirea actiunilor de atenuare a schimbarilor climatice;
- Sa sprijine politicile UE dincolo de granitele sale.

Banca imprumuta fonduri de pe pietele de capital si cu ele crediteaza in conditii favorabile proiecte care sprijina obiectivele UE. Aproximativ 90% din credite se acorda in tarile din UE. Nu se acorda fonduri din bugetul UE.

BEI ofera trei tipuri principale de produse si servicii:

- Imprumuturi – aproximativ 90% din totalul angajamentelor financiare ale bancii. Banca acorda credite clientilor de orice dimensiune, pentru a sustine cresterea si ocuparea fortei de munca, in vreme ce de multe ori acest sprijin ajuta la atragerea altor investitori;
- Finantarea mixta – permite clientilor sa combine finantarea de la BEI cu investitii suplimentare;
- Consultanta si asistenta tehnica – pentru a obtine rentabilitate maxima;

- BEI acorda in mod direct credite in valoarea de peste 25 mil. de EUR. In ceea ce priveste imprumuturile mici, banca deschide linii de credit pentru institutiile financiare care apoi furnizeaza aceste fonduri sub forma de imprumuturi.

Deciizile sale cu privire la luarea si acordarea imprumuturilor Banca le ia pe baza meritelor fiecarui proiect si a oportunitatilor oferite de pietele financiare. In UE banca are prioritati specifice de creditare. In afara UE ea sprijina politicile Uniunii de dezvoltare si cooperare.

Ca organism independent, banca ia decizii autonome pentru luarea si acordarea creditelor. Banca colaboreaza cu alte institutii ale UE, in special cu Comisia Europeana, Parlamentul European si Consiliului UE.

BEI finanteaza proiecte in urmatoarele sectoare prioritare.

Inovare si competente

Inovatiile si abilitatile sunt elementele cheie pentru asigurarea unei cresteri durabile si crearea de locuri de munca cu valoarea inalta. Ele joaca un rol important in stimularea competitivitatii pe termen lung. Pentru BEI aceasta este o prioritate principala si prin urmare este un partener cheie pentru proiectele care dezvolta inovatia si abilitatile pentru o economie in curs de dezvoltare.

Infrastructura

Infrastructura este pilonul principal care leaga pietele interne si economiile. Proiectele de infrastructura joaca un rol important pentru cresterea economica, sustenabilitatea si crearea de locuri de munca, precum si pentru asigurarea competitivitatii.

Prin urmare BEI ca banca a UE pune ca prioritate de baza acordarea de investitii in infrastructura. In acelasi timp modelele noi de finantare pun cerinta de a fi finantate costuri rezonabile si eficiente. BEI acorda sprijin financiar initiativelor de infrastructura destinate imbunatatirii eficientei energetice, transportului, infrastructura apei si infrastructura urbana durabila .

Schimbarile climatice si mediul

BEI se angajeaza si pentru adaptarea la schimbarile climatice si la atenuarea consecintelor cu mai mult de 25 % din resursele financiare totale. Pentru investitiile in tarile de dezvoltare, aceasta cota se prevede sa creasca pana la 35 % pana in anul 2020.

In acelasi timp, BEI ofera sprijin pentru promovarea obiectivelor ecologice atat in tarile dezvoltate, cat si in tarile in curs de dezvoltare. Finantarile BEI sprijina proiecte sustenabile in peste 160 de tari si actioneaza ca un catalizator pentru mobilizarea fondurilor private.

Banca Europeana pentru Reconstructie si Dezvoltare

Banca Europeana pentru Reconstructie si Dezvoltare (BERD) este infiintata in anul 1991 cu scopul de a contribui la progresul economic si de a sprijini tranzitia catre o economie orientata spre piata a tarilor din Europa Centrala si de Est, care au acceptat sa respecte principiile democratiei pluraliste. Actionarii sai sunt 63 de tari si 2 institutii interguvernamentale - Uniunea Europeana si Banca Europeana de Investitii. In prezent capitalul social al BERD este de 21 de miliarde de EUR, iar pana la data de 31 decembrie 2021 se asteapta sa fie finalizata subscrierea din partea actionarilor de actiuni platibile la cerere in valoare de 9 miliarde EUR. Republica Bulgaria participa la capitalul BERD cu 165,95 de mil. EUR, reprezentand 16 598 de actiuni, fiecare cu valoarea nominala de 10 000 EUR.

Prin activitatile sale BERD contribuie la constituirea economiilor de piata in 29 de state din Europa Centrala pana la Asia Centrala, devenind cel mai mare investitor unilateral.

Prin activitatea sa si politica de investitii BERD sprijina si contribuie la punerea in aplicare a reformelor structurale si sectoriale in tarile de activitate, la dezvoltarea concurentei, stimularea privatizarii si a initiativei private precum si a infrastructurii necesare pentru sprijinul sectorului privat. BERD investeste in principal in intreprinderi private, de regula in colaborare cu alti parteneri comerciali. 87% din proiectele BERD sunt in sectorul privat. In

sectorul public BERD acorda finantare proiectelor majore de infrastructura. Banca lucreaza, de asemenea, cu intreprinderi din sectorul public pentru a sprijini privatizarea,

restructurarea intreprinderilor proprietate de stat si pentru imbunatatirea serviciilor municipale.

BERD dispune de o gama larga de instrumente, care sa raspunda cerintelor specifice ale proiectelor. Principalele instrumente sunt imprumuturile, investitiile si garantiile.

Imprumuturile sunt acordate in orice valuta comercializata pe principale piete financiare globale sau uneori in moneda nationala a debitorului cu dobanda fixa sau flotanta in conditii deosebit de favorabile. Ratingul de credit ridicat al bancii (AAA de la Standard & Poor's, Aaa de la Moody's si AAA de la Fitch) ii permite prin asigurarea de finante in conditiile cele mai competitive pe pietele internationale sa ofere imprumuturi care raspund cel mai bine cerintelor clientilor sai. BERD acorda imprumuturi de cel putin 5 mil. EUR cu termen de rambursare cuprins intre 1 si 15 ani, cu o perioada de gratie atunci cand este necesar. De regula, Banca finanteaza pana la 35 % din valoarea totala a proiectului.

FINANTAREA PRIVATA

Fondurile financiare private sunt mijloacele de la banci private, fonduri, initiative, proiecte si fonduri de la companii private si organizatii neguvernamentale.

1.5.6. Finantarea infrastructurii portuare prin MIE

MIE este unul din instrumentele specializate pentru finantarea constructiei si dezvoltarii infrastructurii portuare in tarile din UE. De aceea utilizarea sa merita o atentie deosebita. Aici se analizeaza participarea si succesul proiectelor prezentate de autoritatile portuare si relatia intre finantarea solicitata si cea alocata. Datele folosite in analiza sunt de la Agentia Executiva pentru Inovare si Retele ale CE (INEA) si sunt completate cu alte date publice.

In sfera analizei sunt incluse rezultatele a douaspezece invitatii, desfasorate de la anul 2014 pana la 2017. Acestea includ toate Invitatiile multianuale, Anunturile anuale, Invitatiile generale si de coeziune. Avand in vedere limitele datelor disponibile, analiza se concentreaza asupra propunerilor, prezentate de organele de administrare a porturilor fiind candidati principali.

In afara de coordonatori principali, organele de administrare ale porturilor au fost implicati in propuneri suplimentare si au beneficiat de finantare din proiecte promovate de tari terte (de exemplu, administratii maritime, companii private, etc.).

Finantarea proiectelor majore de extindere a infrastructurii evident are un efect pozitiv asupra eficientei, sigurantei, securitatii si aspectele de mediu care contribuie la competitivitatea si la dezvoltarea comertului, atat in interiorul, cat si in afara UE.

Astfel finantarea de catre UE pentru astfel de proiecte este clara si in interesul porturilor europene. Indiferent de aceasta, accentul acestei analize se pune pe proiectele prezentate de catre organele de administrare a porturilor ca solicitant coordonator, deoarece ele sunt organizatia responsabila pentru majoritatea investitiilor in infrastructura portuara.

Tabel 6. Rezultatele participarii organelor de administrare a porturilor la invitatiile MIE de participare la procedurile de ofertare pentru perioada 2014-2017

Invitatii MIE pentru 2014-2017	Buget maxim (€)	Propuneri de la OAP	Propuneri finantate	Fonduri alocate (€)	% de finantare
Invitatie 2014	11.930.000.000	95	30	524.513.401	4%
Invitatie 2015	7.560.000.000	40	14	187.925.504	2%
Invitatie 2016	1.939.500.000	26	12	64.847.407	3%
Invitatie 2017	1.000.000.000	7	6	83.216.772	8%
Total	**22.429.500.000**	**168**	**62**	**860.503.084**	4%

Sursa: Datele INEA si informatiile public accesibile

De la anul 2014 pana la anul 2017 aproximativ o treime din proiectele portuare, prezentate de organele de administrare a porturilor (OAP) au reusit sa atraga fonduri de la MIE. Organele de administrare ale porturilor au prezentat in total 168 de propuneri. Aceste propuneri se refereau la unul din urmatoarele tipuri de transport: porturi, porturi maritime, multimodale, feroviare, cai navigabile interioare, drumuri. Dintre acestea 62 de propuneri au primit finantare.

Mai mult de jumatate din propunerile prezentate de organele de administrare a porturilor (87 de propuneri) au primit o apreciere negativa a cel putin unuia dintre cele patru criterii de evaluare externa (relevanta, maturitate, impact, calitate). Numai 19 propuneri (11 %) nu au primit finantare din cauza constrangerilor bugetare, desi au fost evaluate pozitiv de catre expertii externi si de Comisie. Organele de administrare ale porturilor au solicitat 2.5 milioane EUR in perioada 2014 – 2017, si au primit 860 milioane EUR, care reprezinta 35%. Aceasta reprezinta 4 % din finantarea disponibila in cadrul MIE pentru perioada respectiva.

Rezultate pe tari

Situatia distribuirii pe tari a fondurilor UE alocate organelor de administrare a porturilor, este prezentata mai jos. Aceasta analiza are doua limitari. In primul rand, aceasta ia in considerare doar cele 62 de propuneri reusite prezentate de organele de administrare a porturilor si astfel exclude finantarea solicitata de porturi prin proiecte depuse de alti parteneri. In al doilea rand, o treime din propunerile de succes (22 din 62) au ca beneficiari - organele de administrare ale porturilor, linii navale, operatori de terminale sau altii. Nu exista date publice cu privire la distribuirea fondurilor intre parteneri. Pentru analiza, finantarea este distribuita in mod egal intre statele-membre participante. Dupa tehnologia aceasta este obtinuta informatia din tabelul de mai jos.

Tabel 7. Repartizarea fondurilor, alocate autoritatilor de gestionare a infrasructurii portuare, pe tari, in EUR

Tara	2014	2015	2016	2017	Total	Cota
Franta	155.761.026	539.880	0	0	156.300.906	18%
Polonia	13.238.184	118.713.559	477.870	19.914.950	152.344.563	18%
Croatia	30.222.600	32.841.238	35.205.931	0	98.269.768	11%
Spainia	72.871.645	7.424.352	647.500	2.169.444	83.112.941	10%
Italia	18.956.743	5.380.450	1.415.650	39.546.444	65.299.287	8%
Olanda	59.892.118	0	321.065	0	60.213.183	7%
UK	44.368.443	0	0	0	44.368.443	5%

Tara	2014	2015	2016	2017	Total	Cota
Irlanda	38.518.056	0	0	4.477.600	42.995.656	5%
Suedia	22.412.874	0	8.699.685	10.388.333	41.500.893	4%
Finlanda	17.925.000	0	8.742.500	6.720.000	33.387.500	2%
Slovenia	13.655.743	1.743.533	0	0	15.399.276	2%
Estonia	14.650.000	0	0	0	14.650.000	1%
Germania	8.692.050	0	2.410.685	0	11.102.735	1%
Romania	0	10.791.706	0	0	10.791.706	1%
Grecia	0	5.308.783	1.415.650	0	6.724.433	1%
Portugalia	4.123.485	2.322.672	0	0	6.446.157	1%
Lituania	5.097.621	0	0	0	5.097.621	0,4%
Danemarca	1.452.070	0	1.890.000	0	3.342.070	0,4%
Cipru	2.675.743	0	441.920	0	3.117.663	0,3%
Bulgaria	0	2.859.330	0	0	2.859.330	0,3%
Malta	0	0	2.857.887	0	2.857.887	0,3%
Belgia	0	0	321.065	0	321.065	0,04%
Latvia	0	0	0	0	0	0
TOTAL	**524.515.415**	**187.927.519**	**64.849.423**	**83.218.789**	**860.503.083**	

Sursa: Analiza, bazata pe datele INEA si informatii publice accesibile

Organele de administrare ale porturilor din Bulgaria si Romania au o rata de cofinantare mai mare (85%) decat KF in invitatiile MIE.

Se poate remarca, ca distribuirea subventiilor alocate pe tari este foarte neuniforma si unele porturi au primit cota mare din finantare, in timp ce, in alte tari cu porturi mari, finantarea alocata administratiilor porturilor este foarte limitata. Acest lucru poate fi partial legat de diferentele de gestionare a porturilor, deoarece unele organe de administrare ale porturilor sunt responsabile pentru un volum mai mare de investitii in infrastructura portuara decat altele – si prin urmare, este posibil sa solicite si sa beneficieze de subventii.

Tabel 8. Numarul proiectelor reusite, pe tari

Tara	2014	2015	2016	2017	Total proiecte
Italia	4	2	1	4	11
Spaina	3	4	1	2	10
Franta	9	1	0	0	10
Suedia	5	0	3	2	10
Polonia	3	3	1	2	9
Croatia	1	3	3	0	7
Ireland	4	0	0	2	6
Finlanda	2	0	2	2	6
Portugalia	3	1	0	0	4
UK	3	0	0	0	3
Slovenia	2	1	0	0	3
Grecia	0	2	1	0	3
Cipru	1	0	1	0	2
Danemarca	1	0	1	0	2
Germania	1	0	1	0	2
Estonia	1	0	0	0	1
Lituania	1	0	0	0	1
Romania	0	1	0	0	1
Bulgaria	0	1	0	0	1
Malta	0	0	1	0	1
Olanda	1	0	1	0	2
Belgia	0	0	1	0	1
Latvia	0	0	0	0	0

Sursa: Analiza datelor INEA si datele public accesibile.

Din analiza rezultatelor invitatiilor anterioare se pot trage urmatoarele concluzii. In primul rand, in perioada 2014 – 2017, autoritatile de administrare ale porturilor, care desi au nevoi de investitii semnificative, primesc doar 4% din finantarea disponibila din cadrul MIE.

Autoritatile de administrare ale porturilor solicita cu precadere finantare pentru proiecte de transport maritim, dar de asemenea, cauta finantare si pentru proiecte de drumuri feroviare, rutiere, fluviale si multumodale.

In al doile rand, repartizarea subventiilor pentru autoritatile de administrare ale porturilor este inegala atat in timp, cat si intre statele - membre. 61 % din finantarea alocata autoritatilor portuare a fost acordata in anul 2014, ajungand in anul 2015 la 83%. Finantarea in anii 2016 si 2017 reprezinta doar 17% din finantarea alocata autoritatilor portuare intre anii 2014 si 2017. Sase tari concentreaza 72% din finantarea alocata autoritatilor portuare in perioada 2014-2017. In timp ce in unele cazuri finantarea este distribuita intre mai multe proiecte, in alte cazuri unele proiecte mai mari primesc o mare parte din finantarea totala a autoritatilor portuare.

Bulgaria si Romania au o participare modesta la utilizarea posibilitatilor MIE. In perioada analizata in ambele tari este implementat doar cate un singur proiect de fiecare. Valoarea sa in Romania este de 10,8 milioane EUR, iar in Bulgaria – 2,9 milioane EUR, ceea ce reprezinta o parte nesemnificativa din bugetul total absorbit de Mecanism.

2. STAREA SISTEMULUI DE NAVIGATIE IN REGIUNEA TRANSFRONTALIERA ROMANIA-BULGARIA

Navigarea pe fluviul Dunarea trebuie inteleasa ca un sistem de elemente individuale interconectate in mod inseparabil. Aceste elemente sunt apele fluviul Dunarii, navele si incarcaturile lor (tipuri de marfuri), porturile ca centre care leaga navigatia interioara cu tipurile de transport rutier si feroviar, servicii fluviale de informare (RIS) impreuna cu cadrul legal si politic. Potentialul navigatiei pe Dunare poate fi realizat pe deplin, numai atunci cand se realizeaza interactiunea tuturor acestor elemente.

2.1. INFRASTRUCTURA PENTRU PRESTARE SERVICII DE INFORMARE FLUVIALA IN BULGARIA

Sisteme fluviale de informare[27]

Sistemele fluviale de informare (SFI) sunt sisteme de navigatie, care servesc navelor si

[27] http://www.bulris.bg/project-bulris/system-bulris

institutiilor responsabile pentru administrarea traficului, intretinerea cailor navigabile, siguranta navigatiei, protectia mediului si altele. Comunicarea traditionala intre nave si diferitele servicii costiere, a fost efectuata prin radiotelefoane, telefonie, observare vizuala si alte metode. SFI este un mediu in care poate fi realizata navigatie electronica contemporana, ceea ce este o practica in transportul maritim. Avand in vedere aplicatiile de comunicatii abordate, prin care functioneaza sistemul informatic al serviciilor fluviale, se poate constata ca acestea au o importanta semnificativa atat pentru echipajele navelor in ceea ce priveste efectuarea sigura a transporturilor, cat si pentru operatorii de transport si de port, unde de importanta este de a fi reduse valorilor costurilor variabile si de a fi imbunatate capacitatile de procesare si de transfer ale porturilor.

Sistemul BULRIS[28]

Sistemele de monitorizare a traficului care se integreaza in BULRIS, furnizeaza in timp real informatii atat serviciilor costiere, cat si datele necesare pentru navigarea in siguranta a navelor: Date AIS, imagine radar si supraveghere video cu optiune de imagine termica.

- Date actuale privind senalul navigabil (calea navigabila) - harti electronice interne de navigatie, aplicatii internet pentru notificarea comandantilor de nave, sisteme radar pe ruta, planificarea transportului;
- Informatii privind legislatia in viguare – regimul de navigare pe teritoriul fiecarei tari;
- Pericole pe calea navigabila / alerte de calamitati;
- Informatii privind transportul si logistica: data sosirii, tipul incarcaturii, volume libere ale navei, etc.;
- Controlul de trafic – asigura siguranta si securitatea transportului si livrarilor. Asigura rapoarte electronice de la nave, supravegherea si urmarirea navelor, identificarea automata (AIS).

[28] http://www.bulris.bg/project-bulris/system-bulris

Prin Regulamentul privind furnizarea serviciilor de informatii fluviale pe caile navigabile interioare ale Republicii Bulgaria (modificat in anul 2014) se transpun in legislatia bulgara cerintele Directivei 2005/44/CE a Parlamentului European si a Consiliului din 7 septembrie 2005 privind armonizarea serviciilor de informatii fluviale (RIS) pe caile navigabile interioare ale Comunitatii.

Directiva 2005/44/CE stabileste obligatia de implementare a patru tehnologii principale SFI cheie:

- Vizualizare hartilor electronice - Inland ECDIS;
- Raportare electronica a voiajelor – ERI;
- Mesaje catre navigatori - NTS;
- Sistem de localizare si urmarire a vaselor - VTT;
- Elemente speciale ale sistemului sunt Baza de Date Hull si Indexul RIS.

In plus, Directiva prevede ca statele membre trebuie sa raspunda uniui set de cerinte minime de date, adica toate datele privind navigarea si planificarea transportului pe caile interioare. Aceste date trebuie furnizate in format electronic si trebuie sa contina cel putin:

- Axa senalului de navigatie cu indicatie de kilometru;
- Restrictii pentru nave sau convoaie cu privire la lungime, latime, pescaj si inaltime;
- Orarul de functiune al structurilor restrictive, in special al ecluzelor si podurilor;
- Amplasarea porturilor si a locurilor de transbordare;
- Date de referinta pentru senzorii de nivel al apei, legate de navigatie.

Elemente ale sistemului

In indeplinirea directivei 2005/44 CE, toate elementele BULRIS sunt pe deplin compatibile cu sistemele analogice din celelalte tari dunarene.

Notificari catre comandantii navelor (Notices to Skippers –NtSNtS)

Notificarile catre comandanti fac parte din sistemul BULRIS. Notificarile sunt tehnologia RIS cheie, care este standardizata si este disponibila in 12 limbi diferite. Mesajele furnizate sunt legate de notificarile institutiilor responsabile cu privire la interdictiile, restrictiile si

particularitatile fluviului sau a unui sector al acestuia, intretinerea senalului navigabil, informatii despre trafic, informatii hidrografice, conditiile meteorologice, nivelul apelor, aparatia sloiurilor. Colectarea automata a informatiilor de la statiile de paginare si meteorologice economiseste timp, resurse umane si greseli.

Subsistemul "Notificari catre comandanti" este legat cu sistemele similare din alte tari si ofera cautare si afisare de mesaje pentru sectiunile respective ale fluviul Dunarea si canalele fluviale. Adresa subsitemului este: http://nts.bulris.bg

Raportarea electronica (ERI)

O alta tehnologie cheie pentru serviciile RIS este Raportarea electronica – ERI. Ea ofera informatii strategice privind traficul, gestionarea traficului, sprijin pentru previnirea calamitatilor, date statistice, date legate de caiile navigabile si taxele portuare, logistica.

BULRIS mentine actualizate:

- Aplicatie Web pentru introducerea rapoartelor electronice pentru utilizatorii inregistrati;
- Interfete catre aplicatii externe pentru ERI.

Rapoartele electronice pot fi completate si trimise atat de capitan, cat si de agent.

Dispozitiile Ordonantei privind furnizarea serviciilor de informatii fluviale pe caile navigabile interioare ale Republicii Bulgaria creeaza conformitatea cu cerintele Regulamentului de implementare (UE) nr. 689/2012 si Regulamentului de implementare (UE) nr. 909/2013. Comandantii si echipajul trebuie, inainte de a intra in acvatoriul unui port, respectand procedura prevazuta in art. 14, al. 1 si 2, sa informeze pe inspectorii Agentiei Executive "Admimistratia maritima" cu privire la intentiile lor printr-un raport electronic (ERI) sau printr-o legatura radio telefonica la canalul coresponzator anuntat pentru informare si navigare - numele, pavilionul navei, numarul navelor, dimensiunea si pescajul maxim al convoiului, viteza si directia de navigatie si existenta marfurilor periculoase – pe tip, clasa si cantitati.

Sistemul ERI este accesibil prin internet la urmatoarea adresa: http://eri.bulris.bg si contine urmatoarele servicii si standarde de lucru:

- Schimbul international de date transfrontalier;
- Servicii Web R2D2
- ERINOT XML bazate ERINOT XSD, versiunea 1.2 g.

Vizualizarea traficului navelor (VTT)

Legat de cerintele Directivei 2005/44/UE privind implementarea si aplicarea serviciilor si sistemelor de informatii fluviale armonizate, vizualizarea traficului de nave se realizeaza prin software-ul http://vtt.bulris.bg, bazat pe internet, care ofera urmatoarele informatii si servicii pentru navigatie.

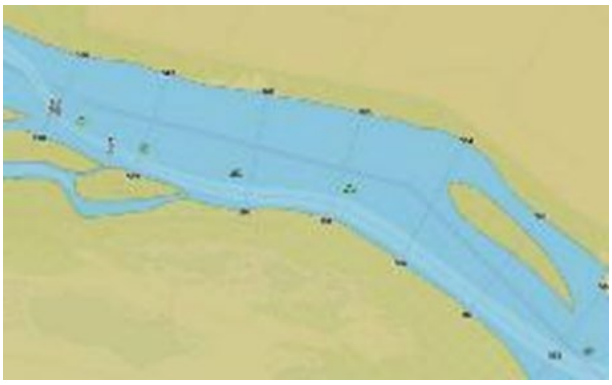
- Date actuale pentru senalul navigabil (calea navigabila);
- Localizarea semnelor fluviale si de coasta;
- Pericole pe cailor navigabole;
- Alerte pentru calamitati;
- Informatii despre transport si logistica.

Interfata grafica de utilizatori Web este interfata utilizatorilor subsistemului AIS. Serverul AIS este conceput pentru a furniza utilizatorului datele disponibile in subsistemul AIS. Hartile utilizate pe serverul Web AIS raspund standardul S-57 Inland ENC si pot fi actualizate.

Programul combina datele de la mai multi senzori, le suprapune si le afiseaza pe harti electronice standard S-57. Sursele de informatii sunt radarele, statiile de baza AIS, camerele CCTV, posturile de radio FM.

Schema 8. Vizualizarea traficului naval

VTT km 487 - 499



VTT km 562-568

Sistemul national de gestionare a datelor de referinta (NRDMS)[29]

Indicatorul RIS al fiecarei tari descrie obiectele de pe caile navigabile, cum ar fi ecluze, poduri, dane de acostare si altele. Datele de referinta sunt necesare pentru crearea notificarilor catre comandantii de nave (NtS), conform Standardul Notices to Skippers Standard Edition 2.0. Datele sunt integrate cu ERDMS, oferindu-se functii pentru crearea de noi date, modificarea celor existente, primirea de date modificate in conformitate cu procedurile descrise in documentul „European RIS Data Management Services" in cadrul proiectului PLATINA.

Pentru Bulgaria indicele RIS este emis de Agentia Executiva pentru Exploatare si Intretinerea Fluviului Dunarea, ca obligatie in temeiul Ordonantei privind furnizarea serviciilor de informatii fluviale pe caile navigabile interioare ale Republicii Bulgaria si este disponibil in mod public tuturor.

Sistemul BULRIS ofera actualul indicator national RIS pentru partea bulgara a fluviul Dunarii. Utilizatorii il pot descarca in format Exel.

Portalul national RIS este integrat cu Sistemul National de Management al Datelor de Referinta NRDMS, din care se produce versiunea actuala a indicatorului RIS. NRDMS este accesibil la http://nrdms.bulris.bg.

Sistem national de prelucrare electronica a documentelor (Single Window)[30]

IS "Infrastructura portuara" a pus in fuctiune, incepand cu 15 martie 2017 Sistemul de Prelucrare Electronica a Documentelor privind sosirea si plecarea navelor in/din porturile noastre fluviale.

Sistemul „Single Window" sau "Ghiseu unic" permite informatiile si documentele standardizate sa se transmita electronic, si nu pe suport de hartie, intr-un singur punct de intrare. Sistemul este in conformitate cu Directiva 2010/65/UE al Parlamentului European si

[29] http://www.bulris.bg/river-information-services/national-reference-data-management-system-(nrdms), *accesibil la 07.07.2017*

[30] http://www.bulris.bg/river-information-services/sistema-za-elektronna-obrabotka-na-dokumenti-na-reka-(single-window), *accesata pe 07.07.2017 г.*

Sistemul „Single Window“ sau “Ghiseu unic” permite informatiile si documentele standardizate sa se transmita electronic, si nu pe suport de hartie, intr-un singur punct de intrare. Sistemul respecta Directiva 2010/65/UE al Parlamentului European si al Consiliului din 20.10.2010 privind formalitatile de raportare aplicabile navelor la sosirea in si/sau la plecarea din porturile statelor membre, Decretul nr. 242 din 04.08.2014 de modificare si completare a Ordonantei privind furnizarea serviciilor de informatii fluviale pe caile navigabile interioare ale Republicii Bulgaria, adoptata prin decretul nr. 329 al Consiliului de Ministri din 2007 (MO, nr.3 din 2008), art. 9, alin. 1 si a Ordonantei.

2.2. CREAREA UNUI SISTEM DE INFORMARE FLUVIALA IN ROMANIA

In indeplinirea angajamentelor tarii, in temeiul Directivei 2005/44/CE a Parlamentului European si al Consiliului din 7 septembrie 2005 privind serviciile de informatii fluviale (RIS) armonizate pe caile navigabile interioare de pe teritoriul Comunitatii, Romania este in proces de implementare a proiectului de construire a unui sistem de monitorizare a traficului RoRIS[31].

Sistemul de informare fluviala in Romania (RoRIS) este un sistem complex de monitorizare si management al traficului de nave in sectorul romanesc al fluviului Dunarea. Sistemul respecta standardele Directivei 2005/44/CE, intrata in viguare la 20 octombrie 2005.

Obiectivele generale ale RIS romanesc pe fluviului Dunarea sunt:

- Imbunatatirea sigurantei navigatiei pe fluviu si eficienta traficului intern;
- Reducerea numarului incidentelor navale, reducerea poluarii si a riscurilor pentru mediu;
- Cresterea maxima a capacitatii efective a cailor navigabile si a capacitatii navelor;
- Asigurarea utilizarii eficiente a porturilor si a terminalelor;
- Obtinera sigurantei maxime pentru pasageri, echipaje, nave si marfuri.

[31] http://www.roris.ro/portal/prezentare-ris/sistem-ris.aspx

Sistemul este organizat in conformitate cu structura organizatorica a Autoritatii Navale Romane. Sediul lui se afla in Constanta. La nivel regional serviciul are birouri in Drobeta Turnu Severin, Giurgiu, Galati, Tulcea и Sulina.

Scopul proiectului este de a dezvolta un sistem informatic pe toata lungimea Dunarii, care sa respecte pe deplin Directiva europeana 2005/44/CO (Directiva RIS). In etapa a II-a se va conecta cu sisteme similare din Austria, Ungaria, Slovacia, Bulgaria si Serbia.

Proiectul face parte din TEN-T sau axa prioritara 3, Domeniul cheie de interventie 3.2 "Imbunatatirea sigurantei in toate tipurile de transport", care vizeaza asigurarea standardelor europene de siguranta si securitate in transportul naval, precum si pentru imbunatatirea Sistemului Informational de Management a Traficului Naval (VTMIS) si prestare servicii de informatii fluviale pe caile navigabile romane.

Judetele incluse sunt: Constanta, Tulcea, Galati, Braila, Calarasi, Ialomita, Giurgiu, Teleorman, Dolj, Olt, Mehedinti, Caras Severin.

Finantarea sistemului este asigurata prin subventii de stat, prin OC in cadrul Programului Operational Sectorial – Transport, Axa prioritara 3 – Modernizarea sectorului de transport in scopul protejarii mediului inconjurator, sanatatii umane si siguranta pasagerilor.

Contractul de finantare a proiectului a fost semnat la 29 octombrie 2009, cu o valoare totala de 49,989,094 lei, din care valoarea totala eligibila este de 42,007,642 lei.

Obiectivele proiectului:

Sistemele pentru RIS au trei obiective principale:

- Transportul trebuie sa fie sigur (presupune reducerea numarul accidentelor si cel al incidentelor in timpul voiajului);
- Transportul trebuie sa fie eficient (maximizarea capacitatii efective de transport a caii navigabile, cresterea capacitatii de incarcare a navelor, reducerea duratelor de calatorie, reducerea costului transportului, reducerea consumului de combustibili, reducerea efortului utilizatorilor RIS, asigurarea unei legaturi eficiente si regime economice de transport, utilizarea eficienta a porturilor si a terminalelor);

- Transportul trebuie sa protejeze mediul (sa reduca pericolele pentru mediu si sa reduca poluarea datorata accidentelor, actiunilor ilegale si a operarii normale).

Aceste obiective sunt intarite de faptul ca sistemele furnizate de RIS trebuie sa fie fiabile, eficiente si in conditii de respectare a legilor.

Obiectivele specifice pentru proiect sunt:

- Asigurarea serviciilor de management si de informare despre traficul de nave pe apele interioare RIS, aliniate la cerintele Directivei RIS ES/44/2005 si a reglementarilor asociate;
- Cresterea traficului de persoane si de marfuri pe caile navigabile interioare prin reducerea factorilor negativi ale transportului fluvial, ca urmare a reducerii numarului de accidente si incidente in navigatie, a reducerii duratelor de transport si a costurilor.

Crearea inui spatiu unic de transport pe caile navigabile interioare prin oferirea de servicii de armonizare la nivel European si prin realizarea interconectarii centrelor RIS natioanale.

Proiectul RoRIS se incadreaza in Axa prioritara 3, KAI 3.2, care are ca obiective “navigarea mai sigura prin imbunatatirea Sistemului de Management al Traficului de Nave pe Dunarea si prin servicii de informare fluviala pe caile navigabile din Romania”. RORis II in prezent este implementata de Autoritatea Navala Romana.

Obiectivele proiectului RoRIS II RIS aliniate la cerintele Directivei RIS EC/44/2005 a Parlamentului European si a Regulamentelor specifice ale Comisiei Europene referitoare la acesta directiva, sunt urmatoarele:

- cresterea sigurantei transportului prin cresterea lungimii cailor navigabile cu servicii de identificare si localizare automata; cresterea numarului de aplicatii suport pentru serviciile RIS;
- Cresterea eficientei transportului prin cresterea numarului de statii fixe de identificare nave, cresterea numarului de statii radio VHF de comunicare cu navele.

Arhitectura sistemului RORIS II

Una dintre principalele sarcini ale proiectului este de a asigura compatibilitatea si armonizarea operationala a sistemelor care fac parte din conceptul RIS prin dezvoltarea unei arhitecturi de sistem, bazata pe Directiva 2005/44/CE si pe rezultatele proiectelor europene de cercetare si dezvoltare (IRIS I, IRIS II, GIS Forum, Platina, etc.).

Sistemul RoRis are o structura functionala ierarhica, structurata pe urmatoarele nivele:

- Nivelul local – Centre locale – asigura colectarea initiala a datelor de la senzori, receptionarea datelor de la diferiti utilizatori, transmiterea de date catre diferiti utilizatori si transmiterea de date catre urmatorul nivel, cel regional;
- Nivelul regional – Centre regionale – receptioneaza datele locale, filtreaza datele duplicate, transmite datele la nivelul national, asigura coordonarea la nivel regional si asigura legaturi intre centrele regionale;
- Nivelul national – un centru national care asigura colectarea datelor de la nivelul regional, asigura coordonarea intregului sistem, realizeaza schimbul de informatii cu alte organizatii, asigura interfete externe pentru alte aplicatii;
- Terminale la Ministerul Transporturilor.

Sistemul RoRIS II dezvolta reteua de senzori (identificarea automata) AIS, radare si monitorizare video. Conceptul si structura retelei suport de comunicatii este complet redefinit prin transferul digital al tuturor informatiilor (inclusiv a mesajelor vocale) in tehnologia IP (Internet Protocol).

Toate informatiile sunt transmise direct sau prin radiolink-uri dedicate senzorilor catre nodurile de comunicatie din posturile locale, regionale si central. Vehicularea informatiilor intre toate aceste noduri de comunicatii se realizeaza printr-un furnizor de servicii de telecomunicatii extern.

Componentele sistemului RORIS II

Senzorii folositi in cadrul sistemului sunt Radar, AIS, CCTV.

Reteaua AIS.

Noul sistem RoRIS are ca scop extinderea serviciilor AIS existente pentru acoperirea cat mai mult posibil a cursului fluviului Dunarii.

Sistemul va fi structurat pe trei nivele: statii de baza la nivel local, sau in puncte izolate de a lungul Dunarii; patru centre regionale la Drobeta Turnu Severin, Giurgiu, Galati, Tulcea; un centru national in Constanta.

Senzorul Radar

Scopul echipamentului radar va fi de monitorizare si control al traficului 24 ore / 7 zile in zonele in care vor fi amplasati senzorii. Senzorii Radar vor fi amplasati in urmatoarele locatii:

Moldova Veche, Orsova, Drobeta Turnu Severin, Giurgiu, Oltenita, Calarasi, Cernavoda, Braila, Galati, Galati-Grindu, Galati – Varsare Prut, Tulcea si Sulina.

Senzorii video de zi /noapte

Senzorii video vor permite supravegherea zonelor de interes in conditii de zi si noapte la distante de la 30 pana la 4000 metri. Locatiile unde vor fi montate senzorii video sunt: Moldova Veche, Orsova, Drobeta Turnu Severin, Calafat, Giurgiu, Calarasi, Cenavoda, Braila, Galati, Galati-Grindu, Galati – Varsare Prut, Tulcea si Sulina.

Statii meteo

Statiile meteo vor fi instalate in fiecare locatie unde exista ECDIS. In cadrul centrelor regionale va fi instalata o singura statie meteo ale carei informatii vor fi afisate ambilor operatori: local si regional. Statiile meteo vor fi prevazute cu senzori de masurare pentru vant (directie si viteza), temperatura aerului (grade Celsius) si vizibilitate (MOR).

Aplicatia desktop pentru managementul traficului naval fluvial de tip ECDIS

Aplicatia ECDIS este parte integranta a nucleului intregului sistem, aceasta integrand informatii de la toti senzorii sistemului.

Reteua pentru comunicatii de voce VHF

Reteua de statii radio VHS constituie suportul pentru mai multe dintre serviciile RIS, care sunt utilizate pentru:

- Servicii de informare privind caile navigabile referitoare la obstructii temporare ale cailor de navigatie; functionarii defectuoase ale echipamentelor de suport pentru navigatie; schimbari pe termen scurt a timpilor de operare pentru ecluze si poduri; restrictii de navigatie datorate inundatiilor si inghetului; nivelul prezent si viitor al apei in punctele critice; servicii suport pentru situatii de calamitate (coordonarea asistentei navelor de patrulare, informarea asupra incidentelor, prezentarea informatiilor catre navele de patrulare, navelor politiei si cele pentru interventii speciale etc.)
- Servicii de management al ecluzelor si podurilor mobile;
- Servicii de planificare a voiajului; servicii suport pentru impunerea legilor si a regulilor in urmatoarele aspecte: managementul trecerilor frontierelor, respectarea cerintelor privind siguranta traficului si respectarea cerintelor privind protectia mediului.

Sistemul de comunicatii cu navele, conform Regulamentul de radiocomunicatii pe Dunare, va avea doua niveluri functionale:

- Nivel local – navele pot comunica intre ele si cu operatorul RIS local; comunicatiile cu navele vor fi realizate de catre operatorii centrului local in aria de acoperire a acestui centru.
- Nivel regional – operatorul RIS regional poate comunica cu orice nava din zona sa de jurisdictie.

Pentru sistemul de voce VHS vor exista patru centre regionale, fiecare dintre ele avand un numar de centre locale in subordine. Cele patru centre regionale sunt: Tulcea, Galati, Giurgiu si Drobeta Turnu Severin. Un sistem similar va fi instalat si in cadrul VTMIS de la Canalul Dunarea-Marea Neagra. Fiecare dintre cele patru centre regionale functioneaza independent de celelalte trei.

Serviciile furnizate de Sistemul RORIS II

Aplicatii pentru servicii de suport RIS:

- Raportarea electronica a voiajelor;
- Avize pentru navigatori;
- Statistica trafic nave;
- Aplicatie pentru inmatriculare/evidenta nave – este un instrument flexibil si rapid care sa ofere o imagine de ansamblu asupra navelor cu pavilion romanesc si a evolutiei lor de a lungul timpului din punct de vedere al caracteristicilor tehnice cat si a status-ului juridic;
- Aplicatie/baza de date de navigatie personala – realizeaza un mediu de lucru informatizat in domeniile de gestiune si arhivare electronica a documentelor prin oferirea unei platforme solide de gestiune si arhivare a documentelor si inregistrarilor;
- Aplicatie de tip baza de date pentru identificarea navelor;
- Servicii suport pentru reducerea efectelor calamitatilor;
- Aplicatie de monitorizare a navelor cu marfuri periculoase.

Interfete cu alte sisteme / institutii

Interfata pentru transfer date catre Politia de Frontiera.

Legatura intre RoRIS si Sistemul de Supraveghere a Frontierei pe Dunarea se va face intr-un singur punct si anume intre Postul Central RoRIS si Directia Regionala Constanta a Politiei de Frontiera.

In cadrul RoRIS se va crea o interfata care sa asigure transmiterea urmatoarelor date:

- Date privind urmarirea si localizarea navelor in timp real (AIS si Radar);
- Lista pasagerilor si echipajului;
- Informatii privind marfa;
- Marfuri periculoase;
- Date statistice si analize;
- Informatii senzori: radar, AIS;

- Alte informatii din gestiunea ANR;
- Baza de date cu informatii despre nave, proprietari, etc.;
- Baza de date cu personalul navigant.

RoRIS a creat o categorie separata de utilizatori pentru "Administratia fluviala a Dunarii de Jos" – Galati (AFDJ) unde institutia furnizeaza public date pentru nivelul fluviului Dunarea, prognoza pentru urmatoarele 2 zile pe locatii, adancimile minime pe sectoare si buletin informativ si hidrometeorologic[32]. In prezent informatiile privind nivelul fluviului Dunarea sunt disponibile pe site-ul Administratiei fluviale a Dunarii de Jos – Galati[33], in temeiul art. 23 din Conventia privind regimul navigatiei pe Dunare semnata la Belgrad pe 18 august 1948 continand principalele dispozitii privind transportul fluvial.

In anul 2010 Comisia Dunarii a emis ***"Reguli speciale de navigatie pe sectorul Dunarii cuprins intre rada Sulina si portul Braila (km 175)***". Aceste "Reguli speciale de navigatie" se aplica pe Dunarea de Jos de la Braila (km 175) la rada Sulina si sunt obligatorii comandantilor tuturor navelor, fara deosebire de pavalionul pe care il arboreaza in sectorul Dunarii de Jos intre Braila (km 175) la rada Sulina. In plus, navele trebuie sa aiba luminile si semnalele prevazute in "Regulile international pentru prevenirea abordajelor pe mare".

Echipamente de navigatie pe caile navigabile interioare

Caile navigabile interioare sunt toate raurile, lacurile, bazinele si canalele adecvate navigatiei navelor. Pe ele navigatia nu este permisa pe toata latimea, ci numai la cea mai mare adancime a spatiului de apa, care este amenajat pentru navigatie si este marcat cu semne de navigatie.

Echipamentele de navigatie pe caile navigabile interioare servesc la crearea conditiilor sigure pentru navigatia navelor. Ele reprezinta un sistem de semnalizare costier si plutitor. Acestea servesc pentru indicarea partilor laterale ale caii navigabile (senalul) si axa acesteia, locurile de intoarcere, locurile de acostare.

[32] http://www.roris.ro/portal/cale-navigabila.aspx
[33] http://www.afdj.ro/en/content/danube-water-level

Semnalizare costiera de aliniament

Atunci cand este necesar sa fie indicata axa unei intinderi lungi drepte a caii navigabile (senalul), sau pentru a directiona nava (convoiul) pe o anumita cale sunt folosite semnele de navigatie instalate pe maluri. Ele sunt liniare (axiale) si inconjuratoare.

Semnele liniare de navigatie sunt alcatuite din doua semne anterior si posterior, de aceeasi forma, situate unul dupa altul, cel din fata avand inaltimea mai mica decat cel din spate, si reprezinta o continuare a axei caii navigabile.

Autoritatea Navala Romana este organul tehnic de specialitate, subordonat Ministerului Transporturilor si Infrastructurii, prin care Ministerul isi exercita functia sa de autoritate de stat in domeniul sigurantei navigatiei.

Principalele sarcini ale Autoritatii navale Romane privind siguranta navigatiei si protejarea mediului sunt urmatoarele:

- Inspectia, controlul si supravegherea navigatiei in apele maritime romane si pe caile navigabile interioare;
- Aducerea la indeplinire a obligatiilor ce revin statului din acordurile si conventiile internationale la care Romania este parte;
- Reprezinta guvernul roman in organismele internationale din domeniul transportului maritim;
- Controleaza aplicarea normelor, reglementarilor si conventiilor internationale ale Uniunii Europene in legislatia romaneasca;
- Elaboreaza, avizeaza si, dupa caz supune spre aprobare Ministerului Transportului si Infrastructurii proiecte de legi si norme obligatorii;
- Efectuieaza controlul statului asupra porturilor;
- Coordonarea activitatilor de prevenire si de reactie la poluarea apelelor navigabile romane si masurilor care trebuie luate in caz de accidente navigabile si victime;
- Protectia apelor navigabile impotriva poluarii de catre nave;
- Sanctionarea contravenientiilor, cercetarea evenimentelor si accidentelor de navigatie;
- Supravegherea si certificarea tehnica a navelor maritime si fluviale, foraje offshore sau alte echipamente militare, care arboreaza pavilionul Romaniei;

- Supravegherea conformitatii transportului maritim militar roman cu prevederile ISM Code и ISPS Code.

Autoritatea navala Romana este desemnata sa indeplineasca obligatiile prevazute de Directiva 2002/59/CE (Directiva VTMIS), Directiva 2000/59/CE (privind instalatiile portuare de preluare a deseurilor provenite din exploatarea navelor și a reziduurilor de incarcatura) si Directiva 2005/44/CE (Oirectiva RIS). Prin urmare, in ultimii ani au fost initiate VTMIS, RoRIS, AIS, SafeSafeNet, CleanSeaNet, LRIT si alte servicii si sisteme, legate de siguranta navigatiei, mediului, pasagerilor, navelor si marfurilor pe caile navigabile interioare si maritime.

2.3. INSTITUTIILE RESPONSABILE PENTRU SIGURANTA NAVIGATIEI IN BULGARIA

Calea navigabila in sectorul fluviului Dunarea de la km 845,650 pana la kilometrul 374,100 este intretinuta de autoritatile competente bulgare si romane in conformitate cu cele prevazute in Acordul dintre guvernele celor doua tari.

Asigurarea conditiilor de navigatie pe caile navigabile interioare ale Republicii Bulgaria, cu exceptie transportului maritim, se realizeaza de Intreprinderea de stat “Infrastructura portuara”. Transportul fluvial in sectiunea bulgara a caii navigabile este asigurata de Agentia Executiva pentru Exploatarea si Intretinerea Fluviului Dunarea (AEEIFD).

AEEIFD indeplineste functiile sale in conformitate cu legislatia interna si internationala privind deservirea, exploatarea si intretinerea conditiilor de navigatie pe caile navigabile interioare ale Republicii Bulgaria.

Agentia isi desfasoara activitatile in modul urmator:

- Asigura conditiile de navigare pe calea navigabila a sectiunii bulgaro-romane a fluviului Dunarea de la km 374,100 pana la km 610,000;
- Studiaza si cerceteaza regimul hidromorfologic si hidrologic al fluviului Dunarea in sectiunea bulgara, si anume: fluctuatiile nivelului de apa, temperatura apei, viteza si directia cursului de apa, debitul apei, regimul de gheata, eroziunea tarmurilor si a insulelor, formarea depunerilor de nisip si insulelor;
- Colecteaza si difuzeaza informatii privind starea caii navigabile si regimul hidrometeorologic al fluviului;

- Studiaza regimul hidromorfologic si hidrologic in zona echipamentelor hidrotehnice in sectorul bulgaro-roman al fluviului Dunarea si asugura navigatia fara impedimente in zona Podului Ruse-Giurgiu;
- Ofera informatii in domeniul exploatatii fluviului;
- Notifica autoritatile, ministerele si agentiile respective de a lua masuri de precautie daca exista risc de inundatii, eroziune costiera, fenomene de gheata, aparitia unor scurgeri de petrol si altele;
- Studieaza si coordoneaza proiectele de constructie a echipamentelor hidrotehnice si de infrastructura implementate pe fluviului;
- Coordoneaza amplasarea instalatiilor tehnice pe fluviu din punct de vedere al navigatiei, distrugerea coastei si a insulelor;
- Efectueaza monitoring hidrometeorologic in sectiunea bulgara prin statiile Novo selo, Lom, Oryahovo, Svistov, Ruse, Silistra si anunta avertizari pentru a asigura navigarea;
- Implementeaza proiecte pentru mentinerea si imbunatatirea conditiilor de navigatie pe fluviul Dunarea;
- Participa la localizarea si lichidarea poluarii cauzate de activitatile de navigatie in sectorul comun bulgaro-roman al fluviului;
- Emite prognoze pe termen scurt pentru nivelul apelor si fenomenele de gheata pe fluviu in sectorul comun bulgaro-roman;
- Emite scheme de extractie depuneri aluvionare si de depunerea acestora in albia Dunarii;
- Furnizeaza informatiile necesare pentru nevoile sistemului informational fluvial bulgar;
- Monitorizeaza cantitatea apelor Dunarii.

Pentru a realiza siguranta si securitatea navigatiei pe Dunare, Agentia efectuieaza urmatoarele actiuni:

- Monitorizarea continua a starii fluviului;
- Indepartarea si restaurarea in timp util a semnelor de navigatie deteriorate si intretinerea caii navigabile conform cerintelor si recomandarilor Comisiei Dunarii;
- Asigurarea de informatii operationale privind gabaritele caii navigabile;

- Corectarea senalului;
- Mentinere in stare buna de exploatare a conditiilor de navigatie in sectorul bulgar al fluviului Dunarea;
- Prezinta imagini a zonelor de apa care sint riscuri pentru navigatie;
- Editeaza un buletin informativ pentru conditiile de navigatie fluviala, notificari catre armatori si difuzeaza zilnic Buletinul Hidrometeorologic ;
- Efectueaza masurari hidrografice in sectoarelor critice pentru navigatie si pentru securitatea Podului Ruse-Giurgiu;
- Monitorizarea continua a modificarilor hidromorfologice, anuntarea sectoarelor critice de navigatie (praguri fluviale) si luarea masurilor adecvate;
- Masurarea cantitatilor de apa cu ajutorul tehnologiei Doppler;
- Difuzarea zilnica a prognozelor privind nivelurilor de apa a statiilor hidrometeorologice Ruse si Silistra;
- Efectuarea observatii meteorologice si climatice;
- Elibereaza autorizatii de utilizare a statiilor pe apa pentru preluarea depunerilor aluviale de pe Dunare;
- Mentinerea conditiilor pentru localizare si lichidare in timp a potentialelor deversari de petrol;
- Crearea unei organizatii optime pentru previzionarea in timp util a naturii si a consecintelor calamitatilor naturale, accidentelor si catastrofele.

Schimbarile in situatia navigatiei si prescriptiile speciale temporare pentru asigurarea sigurantei navigatiei pe cailor interioare fluviale se publica in “Notificari catre comandanti” pe site-ul electronic al sistemului bulgar de informatii http://nts.bulris.bg/. Comandantii navelor si echipajele sunt obligati sa respecte gabaritele caii navigabile notificate in “Notificari catre comandanti” si sa nu treaca prin zonele critice cu pescaj care depaseste pe cel anuntat.

Termenii si conditiile regimului de navigatie si regimul de frontiera in apele interioare maritime, in marii teritoriale si pe caile navigabile interioare ale Republicii Bulgaria pentru iahturi bulgaresti si straine, barci si alte ambarcatiuni de agrement, sport si turism, precum si de atractii pe apa, se stabilesc printr-o Ordonanta a Consiliului de Ministri al Republicii

Bulgaria (adoptata prin Decretul Consiliului de Ministri nr. 293 din 07.12.2009 si prom.- MO, Nr.99 din 15.12.2009).

In luna februarie, anul 2018, la Ruse, Bulgaria si Romania au semnat un Acord privind termenii si conditiile de efectuare a inspectiilor comune ale navelor pe caile navigabile interne in sectiunea comuna bulgaro-romana a Dunarii.

Documentul este rezultatul implementarii activitatilor din cadrul proiectului "Dezvoltarea unei baze de date comune si a cadrului legal pentru inspectiile navelor pentru sectorul comun bulgaro-roman al Dunarii cu interfata la serviciul national de informatii fluviale" (RIS) DANRiSS, finantat in cadrul Programului de Cooperare Transfrontaliera INTERREG V-A Romania-Bulgaria 2014-2020 (o scurta descriere este prezentata mai jos).

Prin semnarea Acordului Bulgaria indeplineste cerintele, prevazute in art. 17 din Directiva Parlamentului European si a Consiliului din 12 decembrie 2006 de stabilire a cerintelor tehnice pentru navele de navigatie interioara si de abrogare a Directivei 82/714/CEE (2006/87/CE) a Consiliului.

2.4. INSTITUTII RESPONSABILE PENTRU SIGURANTA NAVIGATIEI IN ROMANIA

Din partea romana "Administratia fluviala a Dunarii de Jos" – Galati (AFDJ)[34] indeplineste functia de autoritate de cai navigabile pe sectorul romanesc al fluviului Dunarea de la granita – km 1075 pana la varsarea fluviului in Marea Neagra, bratul Sulina, rada Sulina. Ele includ bratele navigabile ale Dunarii Borcea, Bala, Macin, Valciu, Caleea, bratul Chilia cu bratele secundare, bratul Sfantul Gheorghe cu canalele de rectificare si bratele secundare ale Canalului Sulina, denumite Dunarea Veche.

Administratia Fluviala a Dunarii de Jos Galati are ca sarcina principala asigurarea conditiilor de navigatie pe Dunare prin lucrari de dragaje, masuratori topohidrografice, semnalizare costiera si plutitoare, pilotaj pe sectorul Dunarii maritime intre Sulina si Braila si in porturile maritime dunarene, transporturi speciale pe Dunarea maritima si fluviala, remorcaje interne si internationale etc., precum si de indeplinirea obligatiilor statului roman in conformitate cu

[34] http://www.afdj.ro/en

conventiile si acordurile internationale la care Romania este perte, care i-au fost incrediintate de Ministrul transportului in conformitate cu HGR 492/2003.

Obiectivele principale, realizate de Administratie sunt urmatoarele:

- asigurarea adancimilor de navigatie prin dragaj de intretinere;
- executarea masuratorilor topohidrografice pentru cunoasterea si urmarirea situatiei morfologice si a depunerilor aluvionare, in special in punctele critice de pe Dunare, a masuratorilor privind debitele de apa si de aluviuni si a masuratorilor privind viteza curentului;
- intocmirea sau, dupa caz, avizarea documentatiilor privind realizarea lucrarilor de intretinere si reparatii la lucrari hidrotehnice speciale si de protectie a malurilor pentru asigurarea si imbunatatirea conditiilor de navigatie;
- executarea de masuratori topohidrografice, dragaje si scoateri de obstacole din bazinele portuare si in danele de operare, la cererea administratiilor portuare, pe baza de contract;
- efectuarea si intretinerea semnalizarii costiere si plutitoare;
- dirijarea navigatiei in sectoarele dificile prin statii semaforice si de supraveghere;
- elaborarea de reguli speciale de navigatie si supunerea lor spre aprobare autoritatilor competente;
- culegerea si prelucrarea datelor hidrometeorologice, elaborarea prognozelor privind variatiile de nivel ale apelor Dunarii in sectorul romanesc;
- transmiterea zilnica a datelor pentru intocmirea buletinului hidrologic al Dunarii la postul de radio "Romania actualitati";
- editarea si difuzarea buletinului hidrometeorologic pentru Dunare cu date hidrologice, meteorologice, adancumi minime de navigatie, gabarite generale si alte recomandari pentru sectoarele de navigatie dificile ;
- intocmirea si difuzarea de avize pentru navigatori;
- avizarea lucrarilor care se efectueaza in zonele de cai navigabile, precum si a lucrarilor de traversare si subtraversare a Dunarii;
- transmiterea informatiilor necesare Comisiei Dunarii privind intocmirea Planului marilor lucrari;

- intocmirea hartilor de pilotaj pentru sectorul romanesc al Dunarii;
- participarea la Comisia Dunarii si la alte organisme internationale, la targuri si expozitii;
- coordonarea activitatii agentilor economici care participa la actiunile de spargere a ghetii pe Dunare;
- efectuarea de prestatii si inchirierea pe baza de contract a capacitatilor disponibile catre persoane juridice romane sau straine;
- asigurarea activitatii de pilotare a navelor maritime pe Dunare, pe sectorul bara Sulina - Braila, in conformitate cu art. 31, 32 si 33 din Conventia despre regimul navigatiei pe Dunare, semnata la Belgrad in 1948, precum si cu alte reglementari
- ducerea la indeplinire a obligatiilor ce revin Romaniei din acordurile si conventiile internationale la care este parte, in conditiile legii;
- efectuarea de activitati editoriale si tipografice;
- examinarea si autorizarea anuala a pilotilor si eliberarea legitimatiilor de exercitare a functiei de pilot pentru Dunarea maritima;
- avizarea studiilor si proiectelor privind lucrarile in albia si pe malurile cailor navigabile;
- stabilirea tarifelor privind activitatile si serviciile cuprinse in obiectul de activitate;
- urmarirea derularii lucrarilor ce se desfasoara in albia si pe malurile cailor navigabile;
- avizarea locurilor de amplasare si a executarii lucrarilor de extractii agregate de balastiera din Dunare si din bratele acesteia;
- avizarea activitatii de extractie a agregatelor si produselor de balastiera din Dunare si din bratele secundare ale acesteia;
- avizarea lucrarilor ce se executa in albia Dunarii si pe bratele secundare pentru realizarea de investitii portuare si alte obiective, precum si a zonelor de deversare a materialului rezultat ca urmare a acestei activitati;
- stabilirea si avizarea zonelor de deversare pentru materialele rezultate ca urmare a dragajelor de intretinere pentru asigurarea adancimilor in senalul navigabil, in dane si in bazine portuare;

- centralizarea si sistematizarea datelor legate de traficul de nave maritime, datele hidrologice si meteorologice, etc., precum si a celor solicitate de Comisia Dunarii;
- intretinerea si repararea tuturor bunurilor proprietate publica date in administrare si a bunurilor proprietate a regiei autonome;
- punerea la dispozitie tuturor utilizatorilor a infrastructurilor fluviale, proprietate publica a statului, care i-au fost concesionate sau date in administrare, prin contracte de inchiriere sau prin asociere, in conformitate cu prevederile legale;
- asigurarea serviciilor de telecomunicatii, radiotelefonice, telex si transmisiuni de date;
- elaborarea programelor anuale si de perspectiva pentru principalii indicatori de intretinere a senalului navigabil - masuratori topohidrografice, semnalizare, dragaj, intretinere si reparatii constructii hidrotehnice, precum si pentru intretinere, reparare si modernizare a bunurilor proprietate publica a statului si a bunurilor proprietate a regiei autonome;
- contractarea de credite la banci sau la alte institutii financiare pentru realizarea obiectivelor propuse;
- incheierea de contracte de vanzare-cumparare cu agenti economici romani si straini pentru echipamente, instalatii si materiale.

3. SIGURANTA NAVIGATIEI IN REGIUNEA TRANSFRONTALIERA ROMANIA-BULGARIA

3.1. Probleme de siguranta in navigatie in regiunea transfrontaliera Romania-Bulgaria si depasirea acestora prin eforturile comune ale ambelor tari.

In ultimii ani s-au construit sisteme moderne de logistica, navigatie si informare pentru fluviul Dunarea, care contribuie la imbunatatirea conditiilor de navigatie si la reducerea riscului de accidente.

Principalele probleme legate de navigatia pe fluviul Dunarea sunt parametrii nesatisfacatori ai traseului navigabil, conditiile nefavorabile de navigatie (ceata, niveluri scazute ale apelor si alte obstacole), nerespectarea restictiilor de navigare, impuse ca urmare a nivelului scazut

al apei si a altor motive. Problemele de navigatie pe fluviu sunt provocate de eroziunea tarmurilor si insulelor si scaderea nivelului de apa in anumite sectoare, ceea ce duce la scadere a adancimilor.

Conditiile hidrologice si climatice existente de-a lungul singurei cai navigabile interioare a tarii – fl. Dunarea necesita masuri de imbunatatire a conditiilor de navigatie si de asigurare a unei adancimi minime de 2,5 m pe intregul an sau in cea mai mare parte a anului, necesara pentru navigarea navelor de pana la 3.000 de tone. Transportul pe caile navigabile interioare este de o importanta deosebita si are un potential subdezvoltat pentru tarile costiere de-a lungul Dunarii.

Navigatia pe caiile navigabile interioare depinde puternic de conditiile morfologice si climatice ale fluviului si de calitatea infrastructurii existente. Aceste conditii sunt constranse in principal de doi factori: unul este asa numitul blocaj (bottlenecks). Aceste sunt zone cu conditii insuficiente de navigatie de exemplu, formarea in fluviul de formatiuni de roci solide duce la scaderea adancimii apelor. Celalalt factor sunt conditiile meteorologice (si pe termen mai lung-clima) care in functie de precipitatiile si evaporarile poate duce in anumite sezoane la nivele scazute de apa. Unul dintre principalii factori sezonieri, care influenteaza sigaranta navigatiei, este regimul de iarna de navigatie. Sub regim de iarna se intelege natura schimbarilor in temperatura apei in perioada de iarna a anului si aparitia fenomenelor de gheata. Cauza fenomenului de gheata este temperatura aerului. Masa apei interactioneaza cu atmosfera si cu albia raului, astfel incat nu efectueaza schimb reciproc de caldura.

In afara de acesti doi factori naturali, legile care reglementeaza numarul maxim admisibil de barje, precum si infrastructurile construite de diferitele tari, de asemenea limiteaza numarul navelor si viteza de deplasare.

Factorii mentionati mai sus afecteaza in mod direct traficul pe fluviul Dunarea, intarzierile vaselor fiind determinate de faptul ca traseul din sectorul romano-bulgar al fluviului este inchis intr-un numar mare de zile ale anului.

Navigatia se realizazeaza in conformitate cu diferite instrumente legislative nationale si internationale care impreuna cu infrastructura si resursele naturale existente garanteaza siguranta transportului fluvial.

Pentru a creste atractivitatea economica a transportului fluvial, pot fi definite urmatoarele necesitati de baza, legate de siguranta sa:

- mentinerea in permanenta a adancimii si a latimii senalului in scopul existentei in continuare a unor conditii de navigatie durabile si eficiente.
- mentinerea razei de curbura;
- construirea si intretinerea porturilor necesare si a infrastructurii insotitoare;
- controlul apelor joase prin intermediului structurilor hidraulice (de exmplu diguri) si dragarii;
- Construirea si intretinerea unei ifrastructuri care trebuie localizata tinand cont de factorii fizici si alti factori (de exemplu, apropierea de piata si conectivitatea la o retea de transport mai larga);
- Implementarea unor masuri preventive sistematice privind formarea de sloiuri pe calea navigabila.

Obiectivul general al masurilor identificate in aceasta analiza este de a asigura parametrii recomandati senalului navigabil si a conditiilor de siguranta a navigatiei in intreaga zona transfrontaliera Romania-Bulgaria prin optimizarea activitatilor de intretinere a cailor navigabile. Acest obiectiv este permanent si toate actiunile intreprinse trebuie sa fie in concordanta cu acesta.

Pentru a asigura siguranta in navigatie si a spori atractivitatea navigatiei si respectiv cota de participare a transportului pe cailor navigabile interiore pe piata de servicii de transport este nevoie de actiuni concertate ale ambelor tari Romania si Bulgaria in doua directii principale:

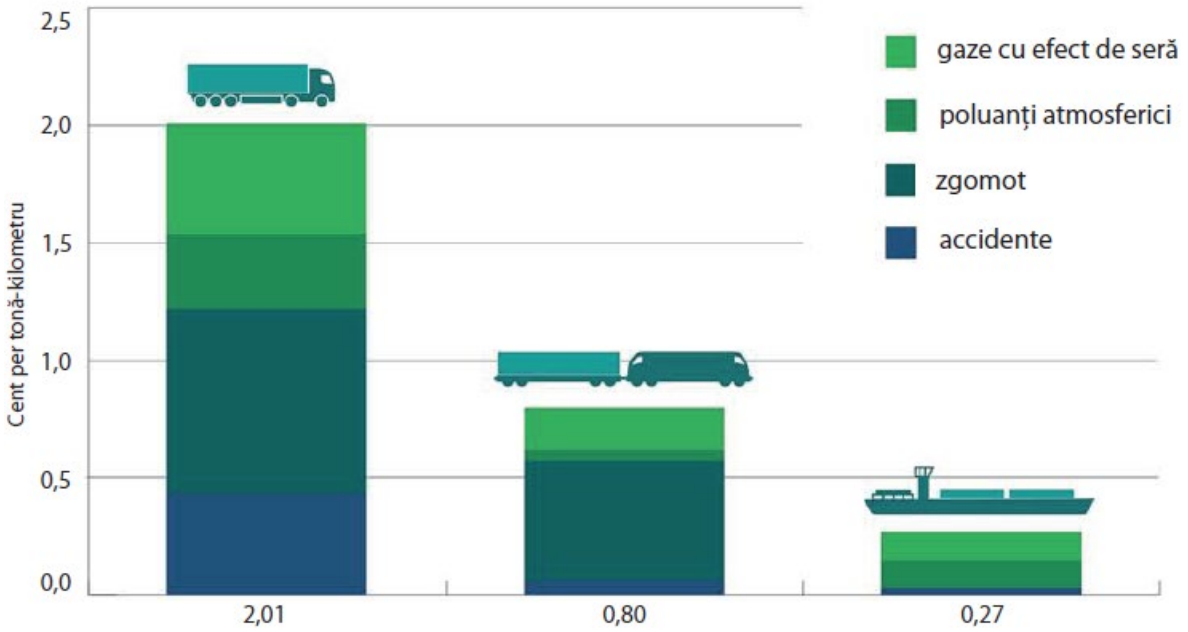
- Eliminarea/reducerea problemelor legate de transportul pe fluviul Dunarea si pe canalele sale si imbunatatirea mentinerii acestora pentru a spori capacitatile de transfer si viteza de navigare;
- Modernizarea echipamentelor de manipulare a incarcaturilor in conditii de concurenta in raport cu celelalte tipuri de transport.

Actiunile comune prevazute in Planul de actiune care va fi elaborat in cadrul Strategiei de imbunatatire sigurantei navigatiei pe Dunarea de Jos va contribui la cresterea sigurantei navigatiei si atractivitatii transportului intern fluvial prin mentinerea adancimii si latimii senalului navigabil, mentinerea curbei, reglarea apelor scazute, imbunatatirea infrastructurii inclusiv cea a canalelor, precum si prin eliminarea sectoarelor critice care afecteaza navigatia pe fluviul Dunarea si pe canalele caii navigabile. Aceasta va duce la cresterea duratei exploatarii anuale a fluviului Dunarea, reducerea duratei de sedere a navelor si implicit cresterea credibilitatii si competitivitatii a acestui transport. Eforturile comune ale Romaniei si Bulgariei de a depasi problemele legate de siguranta in navigatie si investitiile in imbunatatirea transportului fluvial vor fi finalizate prin modernizarea infrastructurii existente a porturilor, situate in TEN-T central, asigurand astfel o combinatie de factori care pot duce la cresterea atractivitatii transportului fluvial si la cresterea volumului marfurilor transportate pe apa si a gradului de utilizare a cailor navigabile si a porturilor.

3.2. ACCIDENTE IN TRANSPORTUL FLUVIAL IN REGIUNEA TRANSFRONTALIERA

In comparatie cu celelalte tipuri principale de transport de marfuri – rutier si feroviar, transportul fluvial este cu cele mai mici costuri externe (external cost). Conform datelor din anul 2007 aceste costuri sunt de 0,27 eurocenti, la 0,80 de eurocenti pentru transportul feroviar si 2,01 eurocenti – pentru cel rutier. O parte din costurile externe de transport se datoreaza costurilor generate de accidente in timpul activitatii de transport. In transportul

fluvial aceste costuri au, de asemenea, o valoare foarte scazuta. Aceasta se datoreaza numarului extrem de mic de accidente de transport.



Sursa: PLANCO, 2007.

Potrivit datelor Eurostat in perioada 2008-2017, virful accidentelor din transportul fluvial bulgar a fost in anul 2012 cu 5 incidente. In anii apropiati 2014 si 2010 s-au inregistrat 4 si respectiv 3 incidente. Cu exceptia anului 2015 cand a avut loc numai un incident, in restul intregei perioade analizate in transportul fluvial al tarii nu a fost raportat niciun accident sau nu exista informatii despre aceasta.

In timp ce tara noastra, dupa acest indicator este cel mai bine prezentata printre tarile enumerate in tabelul de mai jos, Romania este la polul celelalt. In Romania, in perioada 2008 - 2016 au fost inregistratare in medie 53 accidente pe an. Acest nivel este foarte ridicat in comparatie cu ceilalti “recordmani”’ in accidente Austria si Ungaria, respectiv cu 19 si 13 accidente in medie in fiecare an.

Tabelul 9. Numarul accidentelor de transport fluvial in tarile din UE in perioada 2008 -2017

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Bulgaria	:	:	3	0	5	4	0	1	:	:
Cehia	10	11	7	9	3	7	6	12	20	11
Croatia	2	0	3	1	2	2	1	2	3	:
Ungaria	2	8	38	13	21	4	5	6	20	:
Austria	:	18	19	14	12	25	19	28	17	:
Polonia	:	8	9	5	5	12	10	8	4	6
Romania	30	51	32	34	80	81	41	75	53	56
Slovacia	:	:	16	9	5	9	:	:	:	:

: - lipsa date

Sursa: Eurostat, 2018 Institutul Naţional de Statistica Transportului portuar maritim de marfuri si pasageri 2017, 2018.

Gravitatea problemei accidentelor in Romania devine si mai semnificativa daca se iau in considerare incidentele cu marfuri periculoase. In comparatie cu tarile din tabelul de mai sus (Tabelul 7), in Romania acestea sunt cele mai multe. In Bulgaria a existat doar un astfel de caz in anul 2013.

Concluzia care poate fi dedusa din analiza succinta a accedentelor de transport fluvial este ca aceste sunt concentrate in Romania. Desi o mica parte dintre acestea se refera la transportul de marfuri periculoase, aceasta ar putea duce la daune grave in regiunea transfrontaliera. Prin urmare este necesara o cercetare mai serioasa si profunda a cauzelor si amploarea acestui fenomen.

3.3. ANALIZA RISCULUI IN NAVIGATIE

Evaloarea factorilor de risc in navigatie este o practica rara in cadrul institutiilor implicate in transportul pe caile navigabile. Potrivit unei publicatii poloneze, printre toate tarile riverine Marii Baltice acest lucru se practica numai in Danemarca si Finlanda[35].

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[35] Gucma, L. Navigational safety management, 2011, Maritime University of Szczecin.

In publicatia Comisiei Dunarii “Dispozitii de baza pentru navigatia pe Dunare” sunt stabilite reguli practice pentru evitarea riscurilor de transport maritim, fara a oferi insa un sistem cuprinzator de analiza si evaluarea riscurilor.[36]

Navigatia trebuie inteleasa ca un sistem de elemente puternic interconectate. Aceste elemente sunt calea navigabila a fluviului Dunarea, navele si marfurile pe care le transporta, porturile ca puncte nodale care leaga navigatia interioara de alte moduri de transport precum transportul rutier si feroviar, sistemul de informare fluviala impreuna cu cadrul juridic si politic.[37] Potentialul navigatiei pe Dunare poate fi realizat pe deplin numai atunci cand se realizazeaza conexiunea dintre toate aceste elemente.

Riscurile de navigatie sunt impartite in patru grupe:

- Pericole provenite de la fund (bancuri de nisip, recife, pietre, canalizare, adancimi, gropi, ape scazute) si nave scufundate;
- Pericole cauzate de factorii hidrometeorologici (vant, ceata, gheata, curenti, etc.);
- Obiecte plutitoare (mine, butoaie, geamanduri, plase de pescuit, etc.);
- Pericole sub forma de linii restrictive, aplicate pe harti (frontiere a poligoanelor, zone de navigatie interzise, sisteme de separare a traficului, etc.) si linii de demarcatie;

Organizatia maritima internationala a stabilit in rezulutiile sale urmatoarele cerinte de asigurare a securitatii, care pot fi adoptate si pentru transportul pe cai navigabile interioare:

a) Stabilirea unor cerinte unice pentru proiectarea, dotarea, achizitionarea navelor si echiparea cu echipaje calificate;
b) Organizarea serviciului de cart;
c) Notificarea in timp a pericolelor maritime;
d) Dezvoltarea unor cai recomandabile de navigatie prin oceane si mari;
e) Crearea unor sisteme de separare a circulatiei navelor in zonele inguste si in zonele cu navigatie intensa;

[36] Commission du Danube, Dispositions fondamentales relatives a la navigation sur le Danube, 2010.
[37] Via donau, Manual on Danube Navigation, 2013.

f) Dezvoltarea unui sistem de identificare unificata a pericolelor de navigatie;
g) Organizarea pilotarii si spargerea ghetii;
h) Elaborarea si aplicarea normelor de manevrare si semnalizare in cazurile de intalniri si depasiri;
i) Investigarea obligatorie a accidentelor maritime, identificarea cauzelor si eloborarea de recomandari pentru prevenirea acestora.

Conform clasificarii cailor navigabile interioare ale Europei, sectorul bulgar al Dunarii se incadreaza in clasa a VII-a. Parametrii tehnici ai zonelor de apa, incadrate in categoriile VI si VII urmeaza sa asigure conditii de navigatie sigure pentru circulatia navelor care transporta

marfuri de mari dimensiuni, grele si voluminoase, precum si containere, stivuite pe trei si patru nivele.

Conditiile de navigatie pe caile navigabile interioare ale Dunarii sunt influientate, de asemenea, si de fluctuatiile sezoniere ale nivelului fluviului (apa inalta, apa scazuta si formarea de sloiuri) si existenta unor locuri inguste de-a lungul caii navigabile. Controlul acestor fenomene in majoritatea cazurilor este imposibil si are un impact negativ asupra transportului pe apa. In anumite perioade ale anului, nivelul fluviului Dunarea fluctueaza in mod diferit in diferitele zone, datorita caracteristicilor specifice ale conditiilor climatice si geologice.

Grafice 3. Restrictiile de pescaj ale navelor In sectorul bulgar al fluviului Dunarea

Conform unui studiu efectuat pe o perioada de zece ani. intre 12% si 18% din zilele anului sectorul bulgar al fluviului Dunarea este nepotrivit pentru o navigatie sigura.

Formarea sloiurilor de gheata este un alt factor de risc. In anul 2017, aproape o luna circulatia navelor a fost oprita atunci cand, in anumite sectoare, sloiurile de gheata au ajuns 70-80%. Aparitia unor astel de cazuri de forta majora este insotita de cresterea valorilor costurilor variabile ale operatorilor de navigatie fluviala si la reducerea cererii consumatorilor, datorita cresterii costurilor serviciilor de transport.

O alta slabiciune a sectorului bulgar al fluviul Dunarea este existenta locurilor inguste. Aceste cai navigabile de importanta internationala care apartin retelei europene de cai navigabile interioare si ale caror parametrii nu corespund celor aprobati pentru clasificarea in categoria respectiva, sunt definiti ca locuri inguste (bottlenecks). Existenta locurilor inguste de-a lungul fluviului Dunarea este un semn al calitatii nesatisfacatoare a cailor navigabile si a transportului dificil. Lungimea totala a acestor sectoare este 91 km care reprezinta aproximativ 19,4 % din lungimea cailor navigabile ale Republicii Bulgaria. Acestea intra in categoria locurilor inguste de importanta strategica si sunt in apropierea Complexului Portuar din Ruse.

Fondurile insuficiente si lipsa echipamentului de dragare corespunzator insotesc intretinerea cailor navigabile din Bulgaria. Asa cum este mentionat in Raportul anual al via donau pentru anul 2016 “Cu toate ca pe tot parcursul anului conditiile hidrologice au fost bune, conditiile senalului navigabil in a doua jumatate a anului 2016 erau mai putin favorabile. Aceasta s-a datorat intretinerii insuficinte si interventiei de capital necesare necorespunzatoare. In anul 2016 in Ungaria si in Bulgaria intretinerea nu s-a facut din cauza lipsei de fonduri si a disponibilitatii de echipamente de dragare corespunzatoare”.[38]

Mentinerea adancimilor de proiectare in porturi este de deosebita importanata pentru exploatarea lor comerciala, dar este si baza pentru siguranta transportului – evitarea cazurilor de urgenta cum ar fi “atingerea fundului cu nava” sau mai grav nava sa esueze. Incidentele de acest fel pot duce la consecinte grave atat pentru nava insasi, cat si pentru portul si statul respectiv. Pe langa riscul de deterioare a corpului navei si posibilele daune asupra mediului cauzate de poluare, ar trebui sa se tina cont si de renumele porturilor bulgare ca fiind sigure. Prejudiciile cauzate reputatiei sunt indirecte, dar pot depasi cu mult prejudiciul cauzat dintr-un caz de urgenta concret. O parte din aceste daune vor fi evaluate prin asigurari mai mari a navelor in vizita, respectiv cresterea tarifelor de transport si in general pierderea competitivitatii si reducerea cifrei de afaceri a porturilor.

Adancimea insuficienta a senalului navigabil limiteaza utilizarea rationala a capacitatii de incarcare a navelor, motiv pentru care este posibil sa se transporte numai anumite tipuri de marfuri, iar aceasta in mod direct este legat cu pierderea pozitiilor pe piata transporturilor

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[38] Viadonau, Annual Report on Danube Navigation in Austria 2016.

interne pe apa si reducerea cererii consumatorilor.

Senalul navigabil din sectorul bulgaro-roman al fluviului Dunarea nu corespunde standardelor de proiectare adoptate pe plan international, emise de comisia Dunarii. Exista restrictii privind navigatia in siguranta si accesibilitatea canalelor care limiteaza eficienta operationala a flotei fluviale, capacitatea fluviului si atractivitatea acestui tip de transport .

Schema 9. Prezenta locurilor inguste principale si strategice pe fluviului Dunarea

Remarca.[39]

“Blocajele principale” sunt sectoarele ale cailor navigabile europene ale caror parametri nu sunt conforme cu cerintele aplicabile cailor navigabile interioare de importanta internationala, in conformitate cu noua clasificare a cailor navigabile interioare europene (clasa IV).

“Blocajele strategice” sunt alte sectoare care indeplinesc cerintele esentiale ale clasei IV, dar trebuie modernizate, pentru a fi imbunatatita structura retelei sau sa creasca capacitatea economica a traficului pe caile navigabile interioare.

Sursa: Via Donau.

[39] Conform definitiilor date in: UNECE, "BLUE BOOK", 2012.

Potrivit raportului al Comisiei Economice a ONU “Cartea albastra” blocajele strategice in Bulgaria pe fluviul Dunarea (E80) sunt in sectorul de la km 845.5 pana la km 375.0, caracterizat prin adancime mica a senalului navigabil in timpul sezoanelor secetoase (sub 2.5 m – valoare recomandata de Comisia Europeana) in mai multe puncte critice, si anume:

- De la km 845.5 pana la km 610.0 cu adancime a senalului navigabil limitata la 2,10-2,20 m, 15-15 zile pe an, si

- De la km 610.0 pana la km 375.0 cu adancime a senalului navigabil limitata la 1,80-2,00 m, 20-40 zile pe an.[40]

Exista, de asemenea, probleme legate de eroziunea tarmurilor si a insulelor si bancurilor de aluviuni in anumite sectoare ale fluviului, care duc la scaderea adancimilor. Problema conservarii curateniei apelor fluviului Dunarea in sectorul bulgaresc este o problema de maxima importanta. Atat apa, cat si fundul sunt poluate cu namol si depuneri in multe locuri. In cazurile de adancimi mici din Tallweg, in special in perioada de apa scazuta, se creaza conditii care pot provoca incidente. Acest lucru poate duce la varsarea apelor reziduale si apelor contaminate cu petrol si/sau combustibil marin care ar produce poluarea fluviului. Imbunatatirea adancimii in sectoarelor critice va reduce probabilitatea de aparitie a unor accidente de aceasta natuara. In aceste conditii trebuie luate masuri pentru imbunatatirea parametrilor caii navigabile si pentru a atinge acest obiectiv este necesara consolidarea coastelor si a insulelor. O problema serioasa este si starea infrastructurii portuare existente-depasita din punct de vedere moral si fizic, utilizarea echipamentelor pentru alte destinatii, etc. (*a se vedea p. 1.3. Starea infrastructurii portuare in regiunea transfrontaliera).*

O problema serioasa, legata de siguranta este nerespectarea restrictiilor de navigatie, impuse din cauza nivelurilor scazute de apa sau din alte motive. Un impact semnificativ asupra cresterii sigurantei si securitatii in procesul de transport o are responsabilitatea fiecarui operator de infrastructura de transport in ceea ce priveste respectarea stricta a cerintelor de conformitate si standardele pentru utilizarea sa. Impact negativ asupra sigurantei si securitatii transportului o are si incalcarea regulilor de operare in conformitate cu reglementarile si standerdele tehnice.

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[40] Ibidem.
Dupa evidentierea scurta a factorilor de risc este facuta o sistematizare dupa elementele navigatiei. In acelasi timp sunt prezentate principalele probleme si manifestarile acestor elemente, intelese ca factori de risc.

Tabelul 10. Factorii de risc in navigatia in regiunea transfrontaliera

Factorii de risc	Probleme si manifestari
Asigurarea unei cai navigabile sigure	• Fluctuatii sezoniere la nivelul cailor navigabile; • Formarea de sloiuri de gheta; • Echipamente de drenare depasite si ineficiente; • Finantarea insuficienta a activitatilor de intretinere. • Eroziunea coastelor si a insulelor si depuneri de nisipuri; • Existenta blocajelor.
Nave si incarcaturi	• Respectarea restrictiilor de navigatie si regulilor de operare; • Gestionarea activitatilor de incarcare-descarcare.
Infrastructura portuara	• Mecanizarea cheilor imbatranite • Lipsa conectivitatii intermodale
RIS	• Necesitatea de completare a sistemului; • Monitorizarea si gestionarea traficului.

Sursa: Intocmit de autorii

Cele mai multe probleme exista in intretinerea caii navigabile. Acolo trebuie concentrate eforturile cand se planifica masurile pentru sporirea sigurantei in navigatie. In majoritatea cazurilor, problemele sunt legate de investitii si numai in conformitate cu restrictiile si RIS ar trebui sa se intreprinda si masuri “moi” care sunt indreptate spre factorii subectivi. Urmatorul pas in analiza riscurilor a fost de a evalua probabilitatea si impactul grupurilor individuale de risc asupra navigatie. In aceasta analiza este aplicata metodologia propusa in propunerea tehnica. La evaluarea probabilitatii si a impactului este folosita scala pe trei nivele. Valoarea cea mai mare de 3 puncte este data facturilor cu cea mai mare probabilitate si grad de impact. Invers, 1 punct se da factorilor cu cea mica probabilitate si grad de impact.

Schema 10. Matricea de evaluare a riscurilor

Importanta riscului = probabilitate * impact

			Impact		
			Inalta	Medie	Scazuta
	0.65-1.0	Inalta	ALARMA	Foarte inalta	Inalta
Probabilitate	0.3-0.64	Medie	Foarte inalta	Inalta	Medie
	0.0-0.29	Scazuta	Inalta	Medie	OK

Rezultatele ale ecestei evaluari sunt prezentate in tabelul urmator. Cel mai mare risc exista in asigurarea infrastructurii cailor navigabile si portuare. Pentru a fi imbunatatita navigatia pe Dunare eforturile trebuie directionate cu prioritate acolo.

Cu o prioritate mai scazuta sunt factorii legati de nave si RIS. Acolo masurile trebuie sa fie concentrate asupra reducerii impactului factorilor de risc, pastrand probabilitatea scazuta de aparitie a evenimentului.

Tabelul 11. Rezultatele evaluarii riscurilor de navigatie

Factorii de risc	Probabilitatea	Impact	Evaluarea generala
Asigurarea unei cai navigabile sigure	2	2	4
Nave si incarcaturi	1	2	2
Infrastructura portuara	2	2	4
RIS	1	2	2

Numarul de accidente care apar in transportul de marfuri si calatori este un indicator care caracterizeaza siguranta navigatiei. Din analiza accidentelor in regiunea transfrontaliera s-a constatat ca in ultimii ani in Bulgaria numarul lor este foarte mic, iar in Romania invecinata asemenea accidente apar foarte des. Prin urmare, in Romania, este necesar sa se faca o

analiza serioasa a cauzelor acestor accidente si sa se ia masuri de reducere a riscurilor de aparitia lor.

Ca o slabiciune sistematica se poate remarca faptul ca nu se realizeaza o analiza sistematica a riscurilor si nu sunt stabilite masuri de depasire sau de atenuare a factorilor de risc.

4. ANALIZA SWOT A INFRASTRUCTURII TRANSPORTULUI PE APA IN REGIUNEA TRANSFRONTALIERA

Analiza punctelor tari si a punctelor slabe, oportunitatilor si amenintarilor (analiza SWOT) rezuma analiza facuta. Aceasta include cele mai importante caracteristici ale infrastructurii de transport fluvial din zona transfrontaliera, precum si particularitatile mediului extern care sunt exprimate ca oportunitati sau amenintari.

Partile tari ale obiectului analizat sunt legate de avantajele transportului fluvial si ale navigatiei in comparatie cu celelalte moduri de transport in ceea ce priveste economia, mediul, transportarea, institutii si sistem de informatii functionale, precum si siguranta transportului fluvial.

Partile slabe provin din infrastructura uzata a transportului fluvial, problemele legate de mentinerea parametrilor cailor navigabile si de conectivitatea redusa cu celelalte retele de transport.

Optiunile prezentate se refera la capacitatea neutilizata a instalatiilor portuare de manipulare a marfurilor, construirea de terminale intermodale si disponibilitatea programelor si instrumentelor de finantare pentru modernizarea si construirea infrastructurii noi si pentru imbunatatirea gestionarii acesteia.

Amenintatile la dezvoltarea infrastructurii de transport fluvial provin de la ignorarea dezvoltarii acestui tip de transport in raport cu celelalte moduri de transport in special cu cel rutier, care duce la cheltuieli publice reduse pentru investitii, conectivitate si intretinere a infrastructurii existente.

Tabelul 12. Analiza punctelor tari si punctelor slabe, oportunitati si amenintari

Puncte tari	Puncte slabe
• Costuri reduse de transport; • Capacitatea de a transporta cantitati mari de marfuri pe unitate de nava; • gradul cel mai scazut de poluare a mediului inconjurator; • gradul ridicat de siguranta a transportului fluvial; • posibilitatea non-stop de a transporta marfuri si calatori; • costuri reduse pentru construirea si intretinerea infrastructurii principale si insotitoare; • disponibilitatea sistemului de informare pentru managementul traficului naval; • institutii functionale responsabile de navigarea si intretinerea caii navigabile.	• dependenta ridicata a senalului navigabil de conditiile climatice variabile, blocarea activitatii de transport si incertitudinea cu privire la termenii de livrare; • viteza redusa de transport; • conectivitatea redusa a retelei cu celelalte retele de transport; • gradul ridicat de degradare fizica si morala a infrastructurii de transport fluvial; • facilitati cu productivitatea redusa pentru mentinerea senalului navigabil; • lipsa unei retele de terminale intermodale in regiunea transfrontaliera.

Oportunitati	Amenintari
• capacitatea de transport neutilazata a cailor navigabile si a infrastructurii portuare existente; • cresterea gradului de constientizare a publicului cu privire la utilizarea transportului ecologic; • imbunatatirea cooperarii pentru dezvoltarea livrarilor intermodale; • un cadru politic favorabil; • programe si finantari internationale pentru dezvoltarea transportului fluvial si a infrastructurii insotitoare; • construirea terminalelor intermodale; • utilizarea parteneriatelor public-private pentru dezvoltarea si modernizarea infrastructurii de transport fluvial; • constructia “drumului de matase”.	• prioritatea redusa pentru dezvoltarea transportului fluvial in documentele nationale de strategie; • costuri insuficiente pentru modernizarea infrastructurii de transport fluvial; • costuri insuficiente pentru intretinerea caii navigabile; • constructia de poduri noi in regiunea transfrontaliera.

Concluzia principala a analizei este ca prin ajutorul unor investitii publice si private bine echilibrate si proiecte de infrastructura si de conectivitate a transportului fluvial la reteaua rutiera si feroviara, pot fi obtinute rezultate economice semnificative cu dimensiuni sociale si ecologice pozitive.

5. VIZIUNEA, MISIUNEA SI OBIECTIVE STRATEGICE, PRIORITATI INVESTITIONALE SI SCOPURI OPERATIONALE

Sistemul cadrului strategic consta in viziune, misiune, prioritati de investitii si obiective operationale. Acestea au fost elaborate tinand cont de rezultatele analizei si a analizei SWOT. Cadrul strategic este orientat spre consolidarea punctelor tari, reducerea celor slabe si utilizarea oportunitatilor de dezvoltare tinand cond de amenintatile identificate.

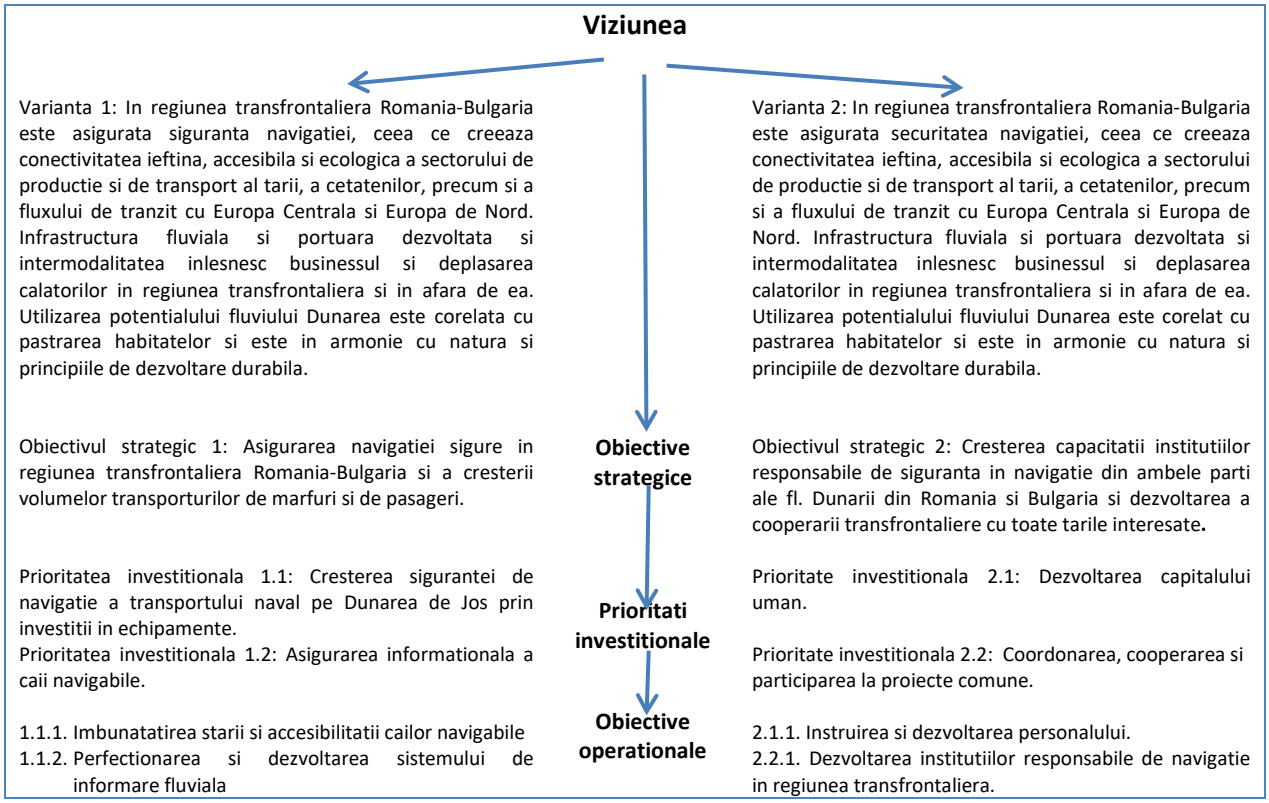
Elaborarea cadrului strategic tine cont atat de rezultatele partii analitice, cat si de ierarhia de directionare si logica interventiei. Au fost luate in considerare si alte documente strategice care au fost create cu ocazia implementarii altor proiecte similare sau sunt rezultatul intelegerilor convenite la reuniunile partenerilor intre autoritatile responsabile. Astfel a fost creata continuitatea si coerenta intre documentele de planificare individuale.

In conformitate cu caietul de sarcini sunt prezentate doua variante ale viziunii, dintre care una ar trebuie aleasa de autoritatea contractanta. Ambele variante sunt compatibile cu cadrul-tinta propus, astfel incat atunci cand se alege o viziune sa nu fie nevoie de modificari.

Exista doua obiective strategice. Primul este orientat spre infrastructura de siguranta a navigatiei, si al doilea spre institutiile responsabile de navigatia pe Dunarea de Jos.

Pentru atingerea fiecarui obiectiv strategic sunt elaborate cate doua prioritati strategice.

Schema 11. Cadrul strategic



Pe langa considerentele strategice, a fost elaborata o misiune, care este prezentata mai jos.

Misiune

Institutiile responsabile de siguranta navigatiei din regiunea transfrontalera Romania-Bulgaria planifica in comun, implementeaza, monitorizeaza, schimba informatii si asigura conditii pentru navigatia in siguranta pe Dunarea de Jos, in conformitate cu acordurile internationale adoptate, utilizand tehnica de ultima ora si aplicand tehnologii adecvate pentru asigurarea parametrilor de navigatie necesari navigarii pe calea fluviala, dispun de personal calificat si destule resurse financiare ca sa-si implementeze planurile strategice si operationale, iar participarea acestora la retelele internationale permite dezvoltarea permanenta a capacitatilor lor, schimbul de informatii utile si aplicarea experientei si practicilor de varf.

6. PLAN DE ACTIUNE

6.1. Actiuni si rezultatele asteptate

Pentru implementarea cadrului strategic a fost elaborat un plan de actiune, care cuprinde activitati selectate pentru atingerea obiectivelor, institutii responsabile, termene, fonduri financiare pentru fiecare activitate in parte. In plus, in tabelul de rezumat al planului de actiune sunt adaugate rezultatele si indicatorii de performanta asteptate, rezultatele si impacturile (a se vedea anexa 1). Planul de actiune a fost eleborat in orizontul de timp 2019-2025, inclusiv.

Activitatile pot fi impartite in activitati de investitii si activitati “moi”, cele de investitii vizand imbunatatirea infrastructurii de navigatie si a institutiilor responsabile de aceasta, iar activitatile “moi” se refera la dezvoltarea capitalului uman, care foloseste aceasta baza materiala. Pentru anumite activitati se preconizeaza combinarea acestor doua tipuri de activitati in vederea realizarii unui impact complex al masurii de interventie.

Activitatile sunt prezentate sintetizat, astfel incat sa pot fie concretizate si specificate la atribuirea contractelor pentru punerea lor in aplicare. Astfel cei care realizeaza planul de actiuni pot avea flexibilitate si pot sa tina seama de situatia actuala a pietii.

O alta caracteristica a activitatilor este ca acestea au fost dezvoltate pentru implementarea comuna intre partea bulgara si romana. In pregatirea implementarii lor intre cele doua tari este necesar sa se discute si sa se defineasca continutul concret al masurilor, care vor fi implementate de fiecare tara.

Rezultatele asteptate sunt legate de activitatile prevazute pentru implementare. Aceste activitati primesc aspect material.

Activitatile prevazute in plan, clasificate conform cadrului strategic, impreuna cu institutiile responsabile si termenele de implementare, precum si rezultatele asteptate sunt prezentate in tabelul urmator.

Tabelul 13. Activitati si rezultatele asteptate din Planul de actiune

Obiective strategice si operationale, prioritati de investitii/activitati	Institutii si parteneri responsabili	Termen	Rezultatele asteptate
Obiectivul strategic 1: Asigurarea navigatiei sigure in regiunea transfrontaliera Romania-Bulgaria si a cresterii volumelor transporturilor de marfuri si de pasageri.			
Prioritate investitionala 1.1: Cresterea sigurantei transportului naval pe Dunarea de Jos prin investitii in echipamente			
Obiectivul operational 1.1.1 - Imbunatatirea starii si accesibilitatii caii navigabile.			
1.1.1.1. Monitorizarea caii navigabile – investitii in nave de monitorizarea parametrilor caii navigabile (eholot si altele) statii automate de masurare, semne si instruirea personalului pentru a lucra cu acestia.	IAPPD CN APDF SA Giurgiu CN APDM SA Galati	2019- decembrie 2022	Nave noi cumparate pentru monitorizarea caii navigabile. Statii automate de masurare noi cumparate si instalate. Personalul instruit de a lucra cu tehnica noua.
1.1.1.2. Investitii pentru echipament de suport (nave multifunctionale de dragare, barje, pontoane, nave de manevra, conducte, semne de navigatie, lumini costiere, etc) – asigurare fonduri, achizitionare si utilizare	IAPPD CN APDF SA Giurgiu CN APDM SA Galati	2019- decembrie 2022	Nave de dragare noi cumparate. Barje cumparate noi. Pontoane, conducte, etc. noi cumparate. Semne de navigare noi cumparate si instalate.
Prioritate investitionala 1.2: Asistenta informationala a caii navigabile			
Obiectivul operational 1.2.1. - Perfectionarea si dezvoltarea sistemului fluvial de informare in navigatie			
1.2.1.1. Finalizarea dezvoltarii si implementarii modulelor de baza ale RIS	IAPPD Autoritatea Navala Romana	2019- decembrie 2020	Toate modulele de baza ale RIS dezvoltate si implementate in ambele tari.
1.2.1.2. Planificare si dezvoltare de noi module ale RIS	IAPPD Autoritatea Navala Romana	2019- decembrie 2024	Dezvoltare module noi ale RIS
1.2.1.3. Integrarea completa si schimb de date permanent cu celelalte RIS care furnizeaza informatii cu privire la navigatia pe Dunare.	IAPPD Autoritatea Navala Romana	2019- decembrie 2025	Baze de date complet integrate
1.2.1.4. Dezvoltarea continua a unei interfete pentru RIS usor de utilizat	IAPPD Autoritatea Navala Romana	2019- decembrie 2025	Interfata pentru RIS usor de utilizat de catre beneficiari.
Obiectivul strategic 2: Cresterea capacitatii institutiilor responsabile de siguranta in navigatie de ambele parti ale fl. Dunarea din Romania si Bulgaria si dezvoltarea cooperarii transfrontaliere cu toate tarile interesate.			
Prioritate investitionala 2.1: Dezvoltarea capitalului uman			
Obiectivul operational 2.1.1 - Instruirea si dezvoltarea personalului.			
2.1.1.1. Asigurarea instruiirii, perfectionarii si dezvoltarii continue a personalului.	IAPPD CN APDF SA Giurgiu CN APDM SA Galati	2019- decembrie 2025	Au fost organizate cursuri de pregatire a personalului pentru dobandirea de cunostinte si abilitati noi.
2.1.1.2. Dezvoltarea capacitatilor de analiza si gestionare a riscului in navigatie.	IAPPD CN APDF SA Giurgiu CN APDM SA Galati	2019- decembrie 2020	Sistem de gestionare a riscului in navigatie elaborat si utilizat.
Prioritate investitionala 2.2: Coordonarea, cooperarea si participarea la proiecte commune.			
Obiectivul operational 2.2.1 – Dezvoltarea institutiilor responsabile de navigatie			
2.2.1.1. Investitii in baza materiala pentru asigurarea activitatii operationale.	IAPPD CN APDF SA Giurgiu CN APDM SA Galati	2019- decembrie 2023	Numarul si tipul echipamentului achizitionat. Numarul proiectelor implementate. Valoarea fondurilor investite.
2.2.1.2. Stimularea participarii la cooperarea si in retelele profesionale.	IAPPD CN APDF SA Giurgiu CN APDM SA Galati/DPPI Autoritatea Navala Romana	2019- decembrie 2025	Integrarea institutiilor bulgare si romane in retelele europene.
2.2.1.3. Imbunatatirea capacitatii de participare si implementare a proiectelor nationale si international.	Municipiul Ruse Municipiul Giurgiu/IAPPD/ CN APDF SA Giurgiu/ CN APDM SA Galati/DPPI	2019- decembrie 2021	Capacitatea disponibila pentru pregatirea de propuneri de proiecte reusite si pentru gestionarea proiectelor.

	Autoritatea Navala Romana		
2.2.1.4. Perfectionarea coordonarii, colectarii si schimbului de informatii cu porturi si cu operatorii portuari.	IAPPD CN APDF SA Giurgiu CN APDM SA Galati	2019-decembrie 2025	Coordonarea si comunicarea cu porturi si operatorii portuari – imbunatatite.

6.2. Cadrul financiar indicativ

Resursele financiare necesare pentru punerea in aplicare a Planului de actiune sunt rezumate pe activitati. Acest lucru este facut in ideea unei mai mari flexibilitati in alocarea fondurilor pe obiective si proiecte ale activitatilor identificate. Mai mult, atunci cand se bugeteaza implementarea fiecarei activitati, pot fi luate in considerare preturile curente si conform cu specificatiile tehnice si cerintele livrarilor si serviciilor, sa se intocmeasca valoarea concreta estimativa pentru fiecare comanda.

Sumele prevazute sunt conforme cu fondurile prevazute in alte documente similare, cum ar fi Fairway Rehabilitation and Maintenance Master Plan for the Danube and its Navigable Tributaries: National Action Plans. Update October 2017.

Valoarea indicativa totala pentru implementarea activitatilor din partea bulgara si partea romana este de 40,95 mil. EUR. Cele mai multe resurse sunt alocate implementarii obiectivul operational 1.1.1.

Cadrul financiar indicativ este prezentat in tabelul urmator.

Tabelul 14. Cadrul financiar indicativ al Planului de actiune

Obiective strategice si operationale, Prioritati / activitati investitionale	**Fonduri financiare, mil. EUR**
Obiectivul strategic 1: Asigurarea navigatiei sigure in regiunea transfrontaliera Romania-Bulgaria si cresterii volumelor transporturilor de marfuri si de pasageri.	
Prioritate investitionala 1.1: Cresterea sigurantei transportului naval pe Dunarea de Jos prin investitii in echipamente.	
Obiectivul operational 1.1.1 - Imbunatatirea starii si accesibilitatii caii navigabile.	
1.1.1.1. Monitorizarea caii navigabile – investitii in nave de monitorizare parametrilor caii navigabile (eholot si altele) statii automate de masurare, semne si instruirea personalului pentru a lucra cu acestia, din care:	**18**

Obiective strategice si operationale, Prioritati / activitati investitionale	Fonduri financiare, mil. EUR
Costuri investitionale	12
Costuri operationale	6
1.1.1.2. Investitii pentru ecipament de suport (nave multifunctionale de dragare, barje, pontoane, nave de manevra, conducte, semne de navigatie, lumini costiere, etc) – asigurare fonduri, achizitionare si utilizare.	**20**
Costuri investitionale	12
Costuri operationale	8
Prioritate investitionala 1.2: Asistenta informationala a caii navigabile	
Obiectivul operational 1.2.1. - Perfectionarea si dezvoltarea sistemului fluvial de informare in navigatie.	
1.2.1.1. Finalizarea dezvoltarii si implementarii a modulelor de baza ale RIS, din care:	**1**
Costuri investitionale	1
Costuri operationale	
1.2.1.2. Planificare si dezvoltare de noi module ale RIS:	**1,5**
Costuri investitionale	1,5
Costuri operationale	
1.2.1.3. Integrarea completa si schimb de date permanent cu celelalte RIS care furnizeaza informatii cu privire la navigatia pe Dunarea, din care:	**0,5**
Costuri investitionale	0,5
Costuri operationale	
1.2.1.4. Dezvoltarea continua a unei interfete pentru RIS usor de utilizat, din care:	1
Costuri investitionale	1
Costuri operationale	
Obiectivul strategic 2: Cresterea capacitatii institutiilor responsabile de siguranta in navigatie de ambele parti ale fl. Dunarii din Romania si Bulgaria si dezvoltarea cooperarii transfrontaliere cu toate tarile interesate.	
Prioritate investitionala 2.1: Dezvoltarea capitalului uman	
Obiectivul operational 2.1.1 - Instruirea si dezvoltarea personalului.	

Obiective strategice si operationale, Prioritati / activitati investitionale	Fonduri financiare, mil. EUR
2.1.1.1. Asigurarea instruiirii, perfectionarii si dezvoltarii continue a personalului, din care:	**0.35**
Costuri investitionale	
Costuri opetationale	0.35
2.1.1.2. Dezvoltarea capacitatilor de analiza si gestionare a riscului in navigatie, din care:	**0.2**
Costuri investitionale	
Costuri opetationale	0.2
Prioritate investitionala 2.2: Coordonarea, cooperarea si participarea la proiecte comune	
Obiectivul operational 2.2.1 – Dezvoltarea institutiilor responsabile de navigatie	
2.2.1.1. Investitii in baza materiala pentru asigurarea activitatii operationale, din care:	**0,5**
Costuri investitionale	0,5
Costuri opetationale	
2.2.1.2. Stimularea participarii la cooperarea si in retelele profesionale, din care:	**0.1**
Costuri investitionale	
Costuri opetationale	0.1
2.2.1.3. Imbunatatirea capacitatii de participare si implementare a proiectelor nationale si internationalle, din care:	**0.1**
Costuri investitionale	
Costuri opetationale	0.1
2.2.1.4. Perfectionarea coordonarii, colectarii si schimbului de informatii cu porturi si cu operatorii portuari, din care:	**0.2**
Costuri investitionale	
Costuri opetationale	0.2
Total	**40.95**

6.3. MASURI LEGATE DE MANAGEMENTUL RISCURILOR

Instrumentele si abilitatile necesare pentru gestionarea riscurilor si obtinerea unei asigurari rezonabile ca obiectivele Strategiei vor fi atinse, trebuie sa fie selectate in fuctie de tipurile de riscuri si de cheltuieala optima a fondurilor institutiilor responsabile de implementare (inclusiv timpul).

In scopul realizarii unei gestionari calitative a riscului in implementarea Strategiei, ar trebui sa fie definite urmatoarele notiuni:

- **Riscul** este orice eveniment incert care poate impiedica Strategia sa-si atinga obiectivele intr-un mod eficace si eficient. Aceasta depinde de raportul dintre probabilitatea si valoarea daunelor provocate de aparitia unui eveniment, legat de implementarea documentului strategic.
- **Gestionarea riscului** este un proces continuu, care este parte integranta din controlul implementarii Strategiei.

Riscuri care pun in pericol implementarea Strategiei

Riscul 1: Slaba comunicare si coordonare (coerenta) intre institutiile bulgaresti si romanesti, responsabile de siguranta nevigatiei pe Dunarea de Jos.

Riscul 2: Neraportarea in timp util a modificarilor in reglementarile supranationale, legate de caile navigabile interioare pe fluviul Dunarea si schimbarile in cadrul legal al Romaniei si al Bulgariei, care sunt relevante pentru activitatile desfasurate si rezultatele asteptate din implementarea Strategiei.

Riscul 3: Schimbari politice si actiuni la nivel national si supranational care impiedica implementarea Strategiei comune.

Riscul 4: Reducerea finantarii din cauza diminuarii bugetelor institutiilor finantatoare.

Pentru a limita sau a depasi impactul riscurilor prezentate, au fost elaborate masuri complexe, care sunt prezentate in urmatoarea expunere.

Riscul 1: Masura "Buna organizare a procesului de coordonare si mecanisme stabilite pentru comunicarea regulata intre institutiile responsabile".

Strategia si Planul de actiune prezinta problemele, propun solutii si coordoneaza eforturile institutiilor responsabile pentru imbunatatirea navigatiei in regiunea transfrontaliera.

Se va organiza o Celula de Coordonare Comuna (CCC) alcatuita din reprezentantii ai institutiilor responsabile din cele doua tari, care poate fi prezidata prin rotatie. Acest lucru va permite reducerea riscurilor legate de numarul mare de contacte dintre diversii reprezentanti ai institutiilor responsabile in timpul implementarii Strategiei. In cadrul activitatii CCC vor fi analizate si stabilite nivelurile de comunicare si canalele de comunicare care vor fi utilizate de institutiile responsabile din regiunea transfrontaliera in procesul de implementare a Strategiei.

Riscul 2: Masura "Monitorizarea documentelor strategice aplicabile, a regulamentelor supranationale si a cadrului legal pentru ambele tari (Romania si Bulgaria), privind siguranta in navigatia pe Dunarea de Jos."

Celula de Coordonare va organiza monitorizarea periodica a modificarilor pregatite/sau adoptate ale documentelor strategice, ale reglementarilor supranationale si reglementarilor nationale. Aceasta se va realiza printr-o revizuire periodica a proiectelor de modificari, publicate spre dezbatere publica, ale institutiilor responsabile la nivel CE si la nivel national in Romania si Bulgaria. Monitorizarea va fi efectuata si asupra modificarilor regulamentelor si bazelor normative modificate si publicate pe site-urile oficiale ale institutiilor responsabile. In plus, CCC va monitoriza si modificarile documentelor la nivel de municipii si regional, care sunt relevante pentru activitatile desfasurate si rezultatele asteptate din implementarea Strategiei.

In cazul unei modificari a regulamentelor si/sau a actelor normative, CCC prin institutiile responsabile desemnate/expertii autorizati, va efectua o evaluare daca modificarile au impact asupra oricarei activitati sau asupra rezultatului asteptat al implementarii Strategiei. Evaluarea se va face prin cele doua alternative "INFLUENTEAZA" si "NU INFLUENTEAZA". Cand evaluarea este "INFLUENTEAZA", vor fi luate masurile necesare, astfel incat modificarile sa fie luate in considerare in deplina conformitate cu cerintele de reglementare. Cand evaluarea arata ca "NU INFLUENTEAZA" nu se iau masuri legate de implementarea, ci doar se actualizeaza baza de date a reglementarilor si a documentelor institutiilor responsabile, care privesc implementarea Strategiei.

In scopul monitorizarii legislatiei aplicabile, CCC va elabora cea mai completa lista de acte normative, care pot influenta implementarea Strategiei.

Se va urmari si procesul de creare de noi documente strategice in urmatoarea perioada de programare a UE 2021 - 2027, care vor inlocui documentele in vigoare pana la anul 2020.

Obiectul monitorizarii va fi urmatorul set de documente (lista neexhaustiva):

- Conventia privind regimul de navigatie pe fluviul Dunarea (asa numita Conventia de la Belgrad din 1948);
- Acordul intre Guvernul Republicii Populare Bulgaria si Guvernul Republicii Populare Romania privind mentinerea si imbunatatirea a senalului navigabil in sectorul bulgaro-roman al fluviului Dunarea din anul 1955;
- Legea privind spatiile maritime, caile navigabile interioare si porturile Republicii Bulgaria;
- Strategia UE pentru regiunea Dunarii;
- INTERREG V-A Romania-Bulgaria (document de programare comun);
- Acordul European privind principalele cai navigabile interioare de importanta internationala;
- Acordul bilateral dintre guvernele Romaniei si Republicii Populare Bulgaria, Sofia, 1955;
- Programul National de Dezvoltare: Bulgaria 2020;
- Decizia Consiliului de Ministri nr. 192 din 25 martie 2015 privind functionarea Mecanismului National de Coordonare pentru implementarea Strategiei Uniunii Europene pentru regiunea Dunarii;
- Planul de gestionare al bazinului international al fluviului Dunarea pentru perioada 2016 – 2021;
- Planul de gestionare al bazinului hidrografic din regiunea Dunarii 2016 – 2021 (adoptat prin Decizia nr. 1110/29.12.2016 a Consiliului de Ninistri);
- Date cu privire la navigatia publicate in Sistemul de informatii fluviale din partea bulgara a fluviului Dunarea (BULRIS);

- Date despre porturile in sectorul bulgaro-roman al fluviului Dunarea, publicate in Sistemul de informatii fluviale din partea bulgara a fluviului Dunarea (BULRIS) si Intreprinderea de Stat Infrastructura Portuara ;
- Programul national de reforme 2017 (Romania);
- Planul strategic national de optimizare si intretinere a apelor in Romania 2011 – 2020;
- Strategia nationala de dezvoltare a transportului (Romania);
- Strategia nationala de Dezvoltare durabila a Romaniei pentru perioada 2013-2020-2030;
- Strategia integrata pentru dezvoltarea durabila a Deltei fluviului Dunarea – nr. 602/2016 (Romania);
- Planul national de gestionare al partii romane din bazinul international al Dunarii nr. 859/2016 (Romania);
- Date privind infrastructura portuara din Romania de la Administratia fluviala a Dunarii de Jos (Romania);
- Planul de dezvoltare regionala a Regiunii Nord-Vest 2014-2020, adoptat prin Hotararea CM nr. 459/01.08.2013 (Bulgaria);
- Planul de Dezvoltare Regionala a regiunii Nord-Centru pentru perioada 2014-2020, adoptat prin Decizia nr. 461/01.08.2013 a CM (Bulgaria.);
- Planul de Dezvoltare Regionala a regiunii Nord-Est pentru perioada 2014-2020, adoptat prin Decizia nr. 460/01.08.2013 a CM (Bulgaria).
- Planul de Dezvoltare Regionala Sud-Est pentru perioada 2014-2020 (Romania)
- Planul de Dezvoltare a Regiunii Sud pentru perioada 2014-2020 (Romania)
- Planul de Dezvoltare Regionala Sud-Vest pentru perioada 2014-2020 (Romania)

Riscul 3: Masura "Dezvoltarea unei strategii pentru colaborarea cu partile interesate"

Strategia a fost dezvoltata prin participarea principalelor parti interesate din ambele tari ale regiunii transfrontaliere. In acest fel au fost luate in considerare interesele lor si utilizata capacitatea lor pentru implementarea Planului de actiuni.

Cand apar situatii in care anumite tari incep sa exercite influenta de retinere asupra implementarii, ar trebui dezvoltata o strategie de reducere sau de neutralizare a acestui

impact. In prima etapa a acestei Strategii, se poate utiliza instrumentul de analiza campului de forte (force field analysis). Apoi trebuie generate si selectate masuri pentru schimbarea echilibrului general al fortelor in directia cresterii fortelor de sustinere.

Riscul 4: Masura "Surse alternative de finantare".

In cazul situatiei de reducere a finantarii, urmeaza sa se ia masuri in doua directii. In primul rand, ar trebui planul de actiune sa fie reexaminat si sa se faca o noua prioritizarea a masurilor vizate. In etapa aceasta este necesar sa se revizuiasca bugetul fiecarei masuri si daca este posibil, sa se aleaga masuri care sa duca la rezultate similare, dar cu mai putine mijloace financiare. Daca este necesar, implementarea unor masuri poate fi lasata pentru mai tarziu.

In al doilea rand, programul financiar trebuie revizuit pentru posibilitati de atragere unor finantari alternative – prin instrumente financiare, parteneriat public-privat, utilizarea altor surse publice si imprumuturi.

In acest fel, planul de actiune poate fi actualizat, astfel incat sa corespunda noile conditii externe.

6.4. MASURI PENTRU IMPLICARE A AUTORITATILOR RESPONSABILE

Implementarea reusita a Strategiei comune pentru imbunatatirea sigurantei de navigatie pe Dunarea de Jos pentru perioada 2019 - 2025 include activitati, care implica cooperarea interinstitutionala intre diferitele institutii la nivel local, regional si national, in fiecare dintre cele doua tari vecine, Romania si Bulgaria. Aceste institutii au locul si rolul sau specific in implementarea integrata a documentului strategic.

In acest sens, coordonarea implementarii Strategiei pentru imbunatatirea sigurantei de navigatie pe Dunarea de Jos, urmeaza sa fie efectuata de un organism interinstitutional comun, special format, cu participarea reprezentantilor regiunii transfrontaliere.

Bunele relatii de parteneriat dintre institutiile de pe ambele parti ale frontierei, stabilite datorita Acordului intre Guvernul Republicii Populare Bulgaria si Guvernul Republicii Populare Romania cu privire la mentinerea si imbunatatirea senalului navigabil in sectorul bulgaro-roman al fluviului Dunarea din anul 1955, Strategia UE pentru regiunea Dunarii,

precum si proiectele realizate, finantate cu fonduri UE vor contribui semnificativ la aceasta coordonare.

Implicarea autoritatilor responsabile in implementarea Strategiei pentru imbunatatirea sigurantei in navigatie pe Dunarea de Jos poate fi realizata prin aplicarea urmatoarelor masuri:

Masura 1: Stabilirea unui Mecanisn unic de coordonare pentru gestionarea activitatilor legate de aplicarea Strategiei, prin:

- Infiintarea unei Celule Comune de Coordonare (CCC) cu reprezentanti ai institutiilor responsabile pentru imlementarea Strategiei in ambele tari;
- Definirea misiunii, structurii si functiilor de baza ale CCC;
- Determinarea tehnologiei de lucru, inclusiv organizarea de sedinte comune;
- Numirea coordonatorilor nationali din Romania si Bulgaria

  Orizont de timp: noiembrie 2018

Masura 2: Institutionalizarea participarii reprezentantilor autorizati ai institutilor responsabile in Celula Comuna de Coordonare si activitatile legate de implementarea Strategiei.

Orizont de timp: noiembrie 2018

Masura 3: Monitorizarea si evaluarea implementarii angajamentelor institutiilor responsabile pentru realizarea strategiei si a rezultatelor obtinute.

Orizont de timp:

Monitorizarea implementarii – o data pe an, pana la sfarsitul anului 2025

Evaluarea rezultatelor – anual – pentru rezultatele imediate; evaluarea ex-post – mai 2026

6.5. MASURI PENTRU OPTIMIZAREA CAILOR NAVIGABILE IN REGIUNEA TRANSFRONTALIERA

Optimizarea cailor navigabile pentru sporirea atractivitatii economice a transportului de marfuri si pasageri pe Dunarea de Jos se poate realiza prin implementarea urmatoarelor masuri:

Masura 1: Mentinerea constanta a adancimii si latimii senalului navigabil si amenajarea apelor joase prin intermediului structurilor hidraulice si a lucrarilor de dragare in scopul de a asigura continuitatea si conditii durabile pentru navigatia pe Dunarii de jos.

Masura 2: Monitorizarea continua a segmentelor inguste si intretinerea Razei de curbura.

Masura 3: Monitorizarea si aplicarea actiunilor preventive sistematice privind formarea de sloiuri pe calea navigabila.

Masura 4: Planificarea, modernizarea si intretinerea infrastructurii portuare necesare si insotitoare.

Masura 5: Instruirea personalului pentru a folosi noile tehnologii.

Masura 6: Dezvoltarea si implementarea proiectelor comune pentru finantarea modernizarii activitatilor de intretinere a cailor navigabile, desfasurate in sectorul transfrontalier.

6.6. MECANISMUL DE MONITORIZARE SI EVALUARE A IMPLEMENTARII

Un pas important in implementarea Strategiei pentru imbunatatirea sigurantei navigatiei pe Dunarea de Jos este monitorizarea periodica si evaluarea progreselor inregistrate in implementarea obiectivelor stabilite si daca este necesar, luarea de masuri corective si preventive.

Responsibilitatea pentru aceasta revine institutiilor publice de stat din ambele tari, care trebuie sa efectuieze o monitorizare eficienta si sa asigure publicitate si transparenta rezultatelor obtinute in implementarea documentului strategic.

Autoritatile responsabile sunt implicate in monitorizarea, controlul si evaluara in toate fazele de pregatire, realizare, arhivare si promovare a activitatilor si a rezultatelor implementarii Strategiei.

Actiunile de monitorizare si evaluare a Strategiei pentru perioada 2019 - 2025 se numara printre responsabilitatile Celulei Comune de Coordonare (CCC) si trebuie sa fie orientate catre colectarea, analizarea si utilizarea sistematica si continua a informatiilor, in scopul controlului managerial, identificarii si luarii de masuri corective in implementarea Planului de actiuni al Strategiei. Introducerea unui sistem de monitorizare si evaluare a Strategiei pentru perioada 2019 – 2025 si aplicarea acestuia garanteaza transparenta si eficienta implementarii documentului intr-un context dinamic.

Pentru a urmari progresele diferitelor obiective operationale si prioritatile/activitatile investitionale este important sa se tina in evidenta modificarile indicatoriloi prezentati mai jos. Se folosesc trei tipuri de indicatori: Performanta, Rezultat si Impact. Indicatorii de rezultat reprezinta efectele directe si imediate, generate de implementarea activitatilor individuale. Aceste sunt legate de prioritatile si obiectivele documentului strategic. Indicatorii de performanta masoara rezultatele intermediare in comparatie cu cele initiale.

Pe de alta parte indicatorii de impact vizeaza atingerea obiectivelor strategice si evaluarea eficacitatii complete a strategiei pana la anuil 2025.

In tabelul urmator este prezentat Sistemul de indicatori pentru urmarirea progresului in implementarea strategiei.

Tabelul 15. Sistemul de indicatori pentru punerea in aplicare a Planului de actiune

Obiective strategice si operationale, activitati/prioritati investitionale	Indicatori de performanta	Indicatori de rezultat	Indicatori de impact
Obiectivul strategic 1: Asigurarea navigatiei sigure in regiunea transfrontaliera Romania-Bulgaria si cresterii volumelor transporturilor de marfuri si de pasageri.			Asigurarea posibilitati de navigatie in siguranta pe tot timpul anului in regiunea transfrontaliera
Prioritate investitionala 1.1: Cresterea sigurantei transportului naval pe Dunarea de Jos prin investitii in echipamente			
Obiectivul operational 1.1.1 - Imbunatatirea starii si accesibilitatii caii navigabile			
1.1.1.1. Monitorizarea caii navigabile – investitii in nave de monitorizare parametrilor caii navigabile (eholot si altele) statii automate de masurare, semne si instruirea personalului pentru a lucra cu acestia	Numarul si tipul echipamentului achizitionat. Numar de personal instruit. Numar de proiecte implementate. Valoarea fondurilor investite.	Asigurarea informatiei precise si in timp util pentru gestionarea navigatiei pe fluviului Dunarea.	
1.1.1.2. Investitii pentru ecipament de suport (nave multifunctionale de dragare, barje, pontoane, nave de manevra, conducte, semne de navigatie, lumini costiere, etc) – asigurare fonduri, achizitionare si utilizare	Numarul si tipul echipamentului achizitionat. Numarul proiectelor implementate. Valoarea fondurilor investite.	Asigurarea traficul de transport pe fluviul Dunarea pe tot parcursul anului	

Prioritate investitionala 1.2: Asistenta informationala a caii navigabile			
Obiectivul operational 1.2.1. - Perfectionarea si dezvoltarea sistemului fluvial de informare in navigatie			
1.2.1.1. Finalizarea dezvoltarii si implementarii a modulelor de baza ale RIS.	Numarul modulelor de baza implementate. Valoarea fondurilor investite.	RIS integrate complet care asigura informatii si comunicare in navigatia pe fluviu.	
1.2.1.2. Planificare si dezvoltare noi module ale RIS	Numarul modulelor noi implementate. Valoarea fondurilor investite.	Disponibilitatea unui RIS care corespunde evolutiei tehnologice contemporane	
1.2.1.3. Integrarea completa si schimb de date permanent cu celelalte RIS care furnizeaza informatii cu privire la navigatia pe Dunarea.	Realizarea unui grad de integrare. Valoarea fondurilor investite.	Existenta comunicarii intre RIS a tarilor pe fluviul Dunarea.	
1.2.1.4. Dezvoltarea continua a unei interfate usor de utilizat pentru RIS.	Nivelul de satisfactie a beneficiarilor de la interfata RIS. Valoarea fondurilor investite.	Existenta unei interfete, care inlesneste analiza informatiilor si luarea deciziilor.	
Obiectivul strategic 2: Cresterea capacitatii institutiilor responsabile de siguranta in navigatie din ambele parti ale fl. Dunarii din Romania si Bulgaria si dezvoltarea cooperarii transfrontaliere cu toate tarile interesate.			Institutiile responsabile de navigatie sunt competente, motivate si colaboreaza in gestionarea navigatiei.
Prioritate investitionala 2.1: Dezvoltarea capitalului oman			
Obiectivul operational 2.1.1 - Instruirea si dezvoltarea personalului.			
2.1.1.1. Asigurarea instruiirii, perfectionarii si dezvoltarii continua a personalului.	Numarul personalului instruit. Numarul proiectelor implementate. Valoarea fondurilor investite.	Existenta unui personal bine instruit si motivat de a gestiona navigatia pe Dunarea de Jos.	
2.1.1.2. Dezvoltarea capacitatilor de analiza si gestionare a riscului in navigatie.	Numarul seminarelor organizate privind analiza si gestionarea riscului de navigatie. Existenta sistemelor implementate de analiza si gestionare a riscului in navigatie.	Gestionarea riscului in navigatie imbunatatita.	
Prioritate investitionala 2.2: Coordonarea, cooperarea si participarea la proiecte comune			
Obiectivul operational 2.2.1 – Dezvoltarea institutiilor responsabile de navigatie			
2.2.1.1. Investitii in baza materiala pentru asigurarea activitatii operationale.	Crearea unei baze materiale moderne si de inalta tehnologie pentru indeplinirea activitatii operationale.		
2.2.1.2. Stimularea participarii la cooperarea si in retelele profesionale.	Numarul participarii in retele. Numarul proiectelor implementate in retele cu participarea partii romane si bulgare. Valoarea fondurilor externe atrase.	Participare la retele profesionale, care imbunatateste gestionarea navigatiei	
2.2.1.3. Imbunatatirea capacitatii de particioare si implementare a proiectelor nationale si internationalle.	Numarul de cursuri de instruire privind pregatirea si gestionarea proiectelor. Numarul personalului instruit. Numarul proiectelor implementate. Valoarea fondurilor atrase. Valoarea fondurilor	Dezvoltate si implementate cu succes proiecte nationale si internationale de dezvoltare si imbunatatire a sigurantei serviciilor de navigatie	

	insusite.		
2.2.1.4. Perfectionarea coordonarii, colectarii si schimbului de informatii cu porturi si cu operatorii portuari.	Volumul schimbului de informatii cu porturi si operatori.	Comunicarea si schimbul de informatii cu porturi si operatorii portuari imbunatatita.	

7. Recomandari

Recomandarile facute nu reprezinta o generalizare a materialului dezvoltat. Sarcina recomandarilor este de a facilita punerea in aplicare a Strategiei si a Planului de actiune. Prin urmare, acestea au un caracter pragmatic si sunt directionate direct catre managementul autoritatilor si institutiilor responsabile.

Astfel, la realizarea documentului, trebuie acordata atentie urmatoarelor caracteristici, care decurg din obiectul contractului:

1. Strategia si planul de actiune elaborate se incadreaza in documentele strategice care sunt relevante pentru siguranta in navigatie pe Dunarea de Jos, fara a le abroga sau duplica. Acestea sunt concentrate pe deplin asupra aspectelor legate de siguranta in navigatie. Eventuala modificare a celorlalte documente strategice, care se asteapta sa se intample cu ocazie perioadei urmatoare de programare 2021 - 2027 in UE, ar trebui reflectata in Strategia si in Planul de actiune.
2. Strategia si Planul de actiune sunt prevazute a fi implementate de catre autoritatile si institutiile din partea bulgara si romana. In acest scop este prevazuta infiintarea unei Celule Comune de Coordonare. De aceea principiul de baza in aplicarea Strategiei, trebuie sa fie parteneriatul intre tarile participante. Doar asa, prin eforturi comune si actiuni coordonate este posibila imbunatatirea sigurantei in navigatia pe Dunarea de Jos. Fluviul este unul, calea navigabila este una, dar doua tari si institutii diferite de pe ambele maluri ale fluviului trebuie sa aiba grija de siguranta sa.
3. Planul de actiune este intocmit in mod concret, in acelasi timp, pemite flexibilitate si concretizare in functie de solutiile tehnice alese si de conjunctura pietei in momentul achizitionarii echipamentului, sau furnizarii serviciului. In acest sens, sunt create conditii pentru satisfacerea nevoilor beneficiarilor si aplicarea principiului de utilizarea optima a resurselor.
4. Strategia si Planul de actiune acopera o perioada lunga de timp intre 2019 - 2025, in care vor interveni schimbari serioase in mediul extern din ambele tari. Prin urmare,

este necesar la aparitia unor modificari mai serioase in mediu sa se faca actualizari, astfel incat noile momente sa fie reflectate in mod adecvat si documentul sa fie adecvat mediului si semnalele pe care le emite acesta.

5. A fost dezvoltat un sistem de monitorizare si raportare a implementarii Strategiei si a Planului de actiune. Este de dorit ca realizarea acestei activitati sa fie proiectata in paralel cu inceputul implementarii Strategiei, astfel in cat sa furnizeze autoritatilor de administrare informatii precise si in timp util despre ce si cum se imtampla in realizarea tuturor activitatilor. In felul acesta va fi posibil sa se ia masuri corective si sa fie asigurata buna realizare a obiectivelor propuse.

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Anexa 1. Matricea sumara a Planului de actiune

Obiective strategice si operationale, prioritati de investitii/activitati	**Institutii si parteneri responsabili**	**Termen**	**Fonduri financi-are, mil. EUR**	**Rezultatele asteptate**	**Indicatori de performanta**	**Indicatori de rezultat**	**Indicatori de impact**
Obiectivul strategic 1: Asigurarea navigatiei sigure in regiunea transfrontaliera Romania-Bulgaria si cresterii volumelor transporturilor de marfuri si de pasageri							Asigurarea posibilitati de navigatie in siguranta pe tot timpul anului in regiunea transfrontaliera
Prioritate investitionala 1.1: Cresterea sigurantei transportului naval pe Dunarea de Jos prin investitii in echipamente							
Obiectivul operational 1.1.1 - Imbunatatirea starii si accesibilitatii caii navigabile							
1.1.1.1. Monitorizarea caii navigabile – investitii in nave de monitorizare parametrilor caii navigabile (eholot si altele) statii automate de masurare, semne si instruirea personalului	IAPPD CN APDF SA Giurgiu CN APDM SA Galati	2019- decembrie 2022	18	Nave noi cumparate pentru monitorizarea caii navigabile. Statii automate de masurare noi cumparate si instalate.	Numarul si tipul echipamentului achizitionat. Numarul de personal instruit. Numarul proiectelor	Asigurarea informatiei precise si in timp util pentru gestionarea navigatiei pe fluviului Dunarea.	

pentru a lucra cu acestia				Personalul instruit de a lucra cu tehnica noua.	implementate. Valoarea fondurilor investite.		
1.1.1.2. Investitii pentru ecipament de suport (nave multifunctionale de dragare, barje, pontoane, nave de manevra, conducte, semne de navigatie, lumini costiere, etc) – asigurare fonduri, achizitionare si utilizare	IAPPD CN APDF SA Giurgiu CN APDM SA Galati	2019- decembrie 2022	20	Nave de dragare noi cumparate. Barje cumparate noi. Pontoane, conducte, etc. noi cumparate. Semne de navigare noi cumparate si instalate.	Numarul si tipul echipamentului achizitionat. Numarul proiectelor implementate. Valoarea fondurilor investite.	Asigurarea traficul de transport pe fluviul Dunarea pe tot psrcursul anului.	
Prioritate investitionala 1.2: Asistenta informationala a caii navigabile							
Obiectivul operational 1.2.1. - Perfectionarea si dezvoltarea sistemului fluvial de informare in navigatie							
1.2.1.1. Finalizarea dezvoltarii si implementarii modulelor de baza ale RIS.	DPPI Autoritatea Navala Romana	2019 – decembrie 2020	1	Toate modulele de baza ale RIS dezvoltate si implementate in ambele tari.	Numarul modulelor de baza implementate. Valoarea fondurilor investite.	RIS integrate complet, care asigura informatiile si comunicarea in navigatia pe fluviu.	
1.2.1.2. Planificare si dezvoltare de noi module ale RIS.	DPPI Autoritatea Navala Romana	2019- decembrie 2024	1,5	Dezvoltate module noi ale RIS	Numarul modulelor noi implementate. Valoarea fondurilor investite.	Disponibilitatea unui RIS care corespunde evolutiei tehnologice contemporane.	
1.2.1.3. Integrarea completa si schimb de date permanent cu celelalte RIS care furnizeaza informatii cu privire la navigatia pe Dunare.	DPPI Autoritatea Navala Romana	2019- decembrie 2025	0,5	Baze de date complet integrata.	Realizarea unui grad de integrare. Valoarea fondurilor investite.	Existenta comunicarii intre RIS a tarilor pe fluviul Dunarea.	
1.2.1.4. Dezvoltarea continua a unei interfete pentru RIS usor	DPPI Autoritatea Navala	2019- decembrie 2025	1	Interfata pentru RIS usor de utilizat de catre	Nivelul de satisfactie a beneficiarilor de la interfata RIS.	Existenta unei interfete, care inlesneste analiza	

de utilizat.	Romana			beneficiari.	Valoarea fondurilor investite.	informatiilor si luarea deciziilor.	
Obiectivul strategic 2: Cresterea capacitatii institutiilor responsabile de siguranta in navigatie de ambele parti ale fl. Dunarea din Romania si Bulgaria si dezvoltarea cooperarii transfrontaliere cu toate tarile interesate.							Institutiile responsabile de navigatie sunt competente, motivate si colaboreaza in gestionarea navigatiei.
Prioritate investitionala 2.1: Dezvoltarea capitalului uman							
Obiectivul operational 2.1.1 - Instruirea si dezvoltarea personalului.							
2.1.1.1. Asigurarea instruiirii, perfectionarii si dezvoltarii continue a personalului.	IAPPD CN APDF SA Giurgiu CN APDM SA Galati	2019-decembrie 2025	0.35	Au fost organizate cursuri de pregatire a personalului pentru dobandirea de cunostinte si abilitati noi	Numarul personalului instruit. Numarul proiectelor implementate. Valoarea fondurilor investite.	Existenta unui personal instruit si motivat de a gestiona navigatia pe Dunarea de Jos.	
2.1.1.2. Dezvoltarea capacitatilor de analiza si gestionare a riscului in navigatie.	IAPPD CN APDF SA Giurgiu CN APDM SA Galati	2019-decembrie 2020	0.2	Sistem de gestionare a riscului in navigatie elaborat si utilizat.	Numarul seminarelor organizate privind analiza si gestionarea riscului de navigatie. Existenta sistemelor implementate de analiza si destionare a riscului in navigatie.	Gestionarea riscului in navigatie - imbunatatita.	
Prioritate investitionala 2.2: Coordonarea, cooperarea si participarea la proiecte comune							
Obiectivul operational 2.2.1 – Dezvoltarea institutiilor responsabile de navigatie							
2.2.1.1. Investitii in baza materiala pentru asigurarea activitatii operationale.	IAPPD CN APDF SA Giurgiu CN APDM SA Galati	2019-decembrie 2023	0,5	Numarul si tipul echipamentului achizitionat. Numarul	Crearii unei baze materiale moderne si de inalta tehnologie pentru implementarea		

				proiectelor implementate. Valoarea fondurilor investiti.	activitatii operationale.		
2.2.1.2. Stimularea participarii la cooperarea si in retelele profesionale.	IAPPD CN APDF SA Giurgiu CN APDM SA Galati/DPPI Autoritatea Navala Romana	2019- decembrie 2025	0.1	Integrarea institutiilor bulgare si romane la retelele europene.	Numarul participarilor la retele. Numarul proiectelor implementate in retele cu participarea partii romane si bulgare. Valoarea fondurilor externe atrase.	Participarea la retele profesionale, care imbunatateste gestionarea navigatiei.	
2.2.1.3. Imbunatatirea capacitatii de participare si implementare a proiectelor nationale si international.	Municipiul Ruse Municipiul Giurgiu/IAPPD/ CN APDF SA Giurgiu/ CN APDM SA Galati/DPPI Autoritatea Navala Romana	2019- decembrie 2021	0.1	Capacitatea disponibila pentru pregatirea de propuneri de proiecte reusite si pentru gestionarea proiectelor.	Numarul de cursuri de instruire privind pregatirea si gestionarea proiectelor. Numarul personalului instruit. Numarul proiectelor implementate. Valoarea fondurilor atrase. Valoarea fondurilor insusite.	Dezvoltate si imbunatatite proiecte nationale si internationale de dezvoltare si imbunatatire a sigurantei serviciilor de navigatie.	
2.2.1.4. Perfectionarea coordonarii, colectarii si schimbului de informatii cu porturi si cu operatorii portuari.	IAPPD CN APDF SA Giurgiu CN APDM SA Galati	2019- decembrie 2025	0.2	Coordonarea si comunicarea cu porturi si cu operatorii portuari –imbunatatite.	Volumul schimbului de informatii cu porturi si cu operatori.	Comunicarea si schimbul de informatii cu porturi si cu operatorii portuari - imbunatatita.	

JOINT STRATEGY FOR IMPROVEMENT OF

NAVIGATION SAFETY ON THE LOWER DANUBE FOR THE PERIOD

2019 – 2025

May 2018

Contents

LIST OF ABBREVIATIONS

AGN	Agreement on Main Inland Waterways of International Importance
CN APDF SA Giurgiu	National Company "Administration of the Danube River Ports" – S.A. Giurgiu
CN APDM SA Galați	National Company "Administration of the Danube River Ports" – S.A. Galați
ERI	Electronic ship reporting
EUSDR	The EU Strategy for the Danube Region
INEA	The Innovation and Networks Executive Agency created by the European Commission
Inland ECDIS	Visualisation of electronic charts
LNWL	low navigable water level
NRDMS	National Reference Data Management System
NtS	Notices to Skippers
NtSNtS	Notices to Skippers
RIS	River Information Services
RoRIS	Romanian River Information System
SWOT analysis	Strengths, weaknesses, opportunities and threats analysis
TEN-T	Trans-European Transport Network
Viadonau	Donau-Österreichische Wasserstraßen-Gesellschaft MBH
VTMIS	Vessel Traffic Management Information System
VTT	Vessel Tracking and Tracing system
WAMS	Waterway Asset Management System
WMMS	Waterway maintenance management system Wasserstraßen Management System
AIS	Automatic Identification System
MIGA	Multilateral Investment Guarantee Agency
GNI	Gross National Income

BULRIS	Telecommunication infrastructure of the river information system in the Bulgarian part of the Danube River
SEPI	State Enterprise “Port Infrastructure”
EIB	European Investment Bank
ESIF	European Structural and Investment Funds
EFSI	European Fund for Strategic Investment
MSIWPARB	Maritime Space, Inland Waterways and Ports Act of the Republic of Bulgaria
EAMA	Executive Agency “Maritime Administration”
IDA	International Development Association
IBRD	International Bank for Reconstruction and Development
CEF	Connecting Europe Facility
SMEs	Small and medium enterprises
MTITC	Ministry of Transport, Information Technology and Communications
IFC	International Finance Corporation
ICSID	International Centre for Settlement of Investment Disputes
PMAs	Port management authorities
OSC	Operational Suitability Certificate
OSC	Operational Suitability Certificate
PHARE CBC	PHARE Cross-border Cooperation

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Introduction

The preparation of a final version of Joint strategy for improvement of navigation safety on the Lower Danube was carried out as a result of the implementation of Activity 4 of public procurement with subject *"Elaboration of Joint strategy for improvement of navigation safety on the Lower Danube"*. It was launched in relation to the implementation of project of Ruse Municipality and Giurgiu Municipality for "Development of the River Danube for better connectivity of the Euroregion Ruse-Giurgiu with Pan-European transport corridor №7", financed under the INTERREG V-A Romania-Bulgaria Programme.

The main objective of the project is to elaborate a Joint strategy for improvement of navigation safety in the Romania-Bulgaria cross-border region on the Lower Danube.

The implementation of this activity is a logical continuation and a summary of the results from the previous three project activities. In this way and in accordance with the procurement terms of reference, the first part, which consists of items 1, 2, 3 and 4, presents in summary form what has been done in the analytical part of the elaboration.

The strategic part, which covers the next items of the material structure, is built on this basis. It starts with defining the vision, mission, strategic goals, investment priorities and operational objectives. To achieve what has been set out in this strategic framework, an action plan is developed and presented, together with risk management measures, measures for involvement of the responsible authorities and measures for waterway optimisation.

The last final part is dedicated to drawing up recommendations for the implementation of the developed action plan. Their purpose is to facilitate the plan management and implementation. They are entirely directed at the management of the responsible authorities and institutions.

1. Assessment of the state of waterway transport infrastructure on the Danube River in the Romania-Bulgaria cross-border region

1.1. Legal framework

1.1.1. Legal framework in Bulgaria

The legal regime of the maritime space, inland waterways and ports of is established by the Maritime Space, Inland Waterways and Ports Act of the Republic of Bulgaria (MSIWPARB). Ports include water, territory and infrastructure on the Black Sea coast and the Danube River bank, islands and channels, located on the territory of one or more municipalities and comprise natural, artificial and organisational conditions for safe berthing, stay, and handling of vessels. The control over all ports (except the military ones) is exercised by the Minister of Transport, Information Technology and Communications. The port infrastructure and other fixed assets of the public transport ports of national importance are managed by State Enterprise "Port Infrastructure" (SEPI). Under the MSIWPARB the Management Board of SEPI adopts the annual program of the State Enterprise for construction, reconstruction, rehabilitation and maintenance of the public transport ports of national importance and offers it for approval by the Minister of Transport, Information Technology and Communications.

Under the MSIWPARB the terms and procedure for registration of ports, port terminals and specialised port facilities are established in Ordinance No 19 of 9 December 2004 on the Registration of the Ports of the Republic of Bulgaria with created Public Register of the Ports of the Republic of Bulgaria, which is administered by Executive Agency "Maritime Administration" and is published on the website of the institution[1]. Ports, port terminals and specialised port facilities shall be entered in the port register after the Ministry of Transport and Information Technology has issued an operational suitability certificate (OSC), with the inspections for issuing the certificate being conducted by the "Maritime administration" directorates in Burgas, Varna, Lom and Ruse. The OSC issuance regime is

[1] http://www.marad.bg/page.php?category=53

established in Ordinance № 9 of 17 October 2013 requirements for operational suitability of ports and specialised port facilities (OROSPSPF).

The territory and infrastructure of the ports can be owned by the state, municipalities, natural and legal persons.

MSIWPARB also defines port services such as commercial services provided in ports for public transport and by carried out by port operators.

Port services fall into the following categories:

- Marine technical services - pilotage, tugging (pulling or pushing), mooring, supplying ships with water, providing telephone and electricity; reception and treatment of waste - the result of shipping activity and others;
- Cargo and mail processing - loading, unloading, stacking, storing, repackaging of different types of cargo, inland (terminal) cargo and mail transport and other;
- Passenger services.

The right granted to port operators to provide services in public transport ports is defined as access to the port services market. The access to the port services market under Art. 116, para. 3, item 2 of public transport ports of national importance is granted by a concession – in cases under Art. 117 of the MSIWPARB.

1.1.1. Legal framework in Romania

The construction and maintenance of port infrastructure on the Danube River in Romania is carried out and controlled by the Ministry of Transport and Infrastructure through specially created state companies performing the function of a port authority. These are CN APDF SA Giurgiu[2] created by Government Decision № 520 of 24 August 1998 on the establishment of the National Company "Administration of the Danube Ports" – S.A. Giurgiu and CN APDM SA Galaţi[3] created by Decision No 518 of August 24, 1998, establishing the National Company "Maritime Administration of the Danube Ports" – S.A. Galaţi.

[2] http://www.apdf.ro

[3] http://www.romanian-ports.ro/html_nou/index.php

The two companies, acting as port authorities, implement the policies of the Ministry of Transport and Infrastructure for developing and maintaining ports and port infrastructure and programmes for waterways development. They ensure the fulfilment of the obligations assumed by the State in the international agreements and conventions under which Romania is a party. The management is carried out both directly by performing port services, as well as by concession, rent and other contractual forms of separate territories, assets and parts of the port infrastructure.

In its activity, the two state-owned companies comply with the requirements of Order № 946/2005 of the Minister of Finance for the approval of "Internal control/management code, including standards for internal control/public companies management and for development of internal control systems", subsequently amended and supplemented.

The port infrastructure managed by CN APDF SA Giurgiu and CN APDM SA Galați is part of the public ownership of national interest.

CN APDF SA Giurgiu manages 11 ports from Baziaș, Socol commune in Caraș-Severin County, Banat to Cernavodă, except the ports of Zimnicea and Turnu Măgurele, which are under the management of the local authorities. CN APDM SA Galați manages the port infrastructure, situated on the sea coast of the Danube River, relevant free port and ship anchorages, from km 12,5 to km 17,5 and from km 251 to km 255, including Galați, Braila, Tulcea, Harsova, Isaccea, Mahmudia and branches of Măcin, Chilia and Sfântu Gheorghe.

1.2. General characteristics and use of waterway transport infrastructure on the Danube River in the Romania-Bulgaria cross-border region

Data on the waterway infrastructure on the Danube River in the Romania-Bulgaria cross-border region and its use can be received from several key sources such as Eurostat, national statistical institutes in both countries, state institutions responsible for river shipping, international organisations, publications of scientists, research organisations and consulting firms.

The navigable section of the Danube RIver, which borders with and is used by Bulgaria is 470 km, while in Romania it is 1075 km. Together with the tributaries of the Danube River, the total river road in Romania is 1647 km. In addition, 132 km of channels are also available in

Romania, which are also used for navigation. Thus, the total length of the waterway in Romania is 1779 km, which is 3.8 times more than Bulgaria.

The wharf front of the river ports for public transport of national importance in Bulgaria has a total length of 9 080 m, along which there are created 44 cargo, 5 ro-ro transport, 14 passenger and 3 service berths.

The wharf front of the river ports for public transport of regional importance in Bulgaria has a total length of 4 964 m, along which there are created 30 cargo, 2 ro-ro transport, 3 passenger and 12 service berths.

The transfer capacity under existing conditions, technical means and operating technologies in the river ports is estimated at about 22.5 million tons. In terms of capacity, the largest share belongs to the ports in the Ruse region – 50%, due to the presence to a large number of passenger ports and ferry terminals.

There are 29 ports in the Romanian part of the Danube, the largest of which are the ports in Galați, Braila and Tulcea, which are located in the sea section of the river. They are part of the TEN-T network, along with ports in Giurgiu, Oltenita and Drobeta-Turnu Severin.

The ports in Galaţi, Brăila and Tulcea, situated at the intersection of the sea and river Danube, are the largest inland ports (Galaţi – with an area of 864 131 sq. m, 56 berths, Brăila – with an area of 389 630 sq. m, 25 berths; Tulcea – with an area of 82 764 sq. m and 41 berths) and have a processing capacity of about 34 million tonnes per year, out of a total of 52 million tonnes per year in Romania.

The total number of self-propelled and non-self-propelled vessels in Bulgaria is constantly decreasing. From 157 vessels in 2007, they are 110 in 2016. Their capacity also drops - from nearly 245,000 tonnes in 2007 to 186,5 thousand tonnes in 2016.

A similar trend, but with lower rates of decline is also observed in Romania. There, the number of self-propelled and non-self-propelled vessels decreases from 1199 in 2007 to 1134 in 2016. The capacity of these vessels is reduced by 46 thousand tonnes in the period 2007-2015 to 1468 thousand tonnes. On the other hand, this reduction increases the average capacity of a ship. In Bulgaria it is 1,69 thousand tonnes in 2016 with 1,56 thousand

tonnes in 2007 and in Romania the respective figures are 1,29 thousand tonnes in 2015 and 1,25 thousand tonnes in 2010.

The age structure of river vessels in Bulgaria is extremely unfavourable. A predominant share of 35% in it is made by vessels manufactured in the period 1981-1990, i.e. 28-38 years ago. About 21% of the vessels were put into operation 40-50 years ago, and only 4% of them are new, i.e. they have been produced in the last 20 years.[4]

Romanian statistics provide information on the age structure only to tugs and pushers (including boats that do not carry passengers), which in total are 294 in 2016. The main contingent of these was produced in the period 1980-1989 and is more than 28 years old. More than a quarter of these vessels were produced in 1950-1969, ages 49-68. After 1990, 14% of tugs and pushers in Romania.

Table 1. Number and carrying capacity of vessels in Bulgaria and Romania

	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Self-propelled and non-self propelled dry cargo vessels, number										
Bulgaria	157	159	158	151	149	141	127	117	114	110
Romania	1199	1221	1232	1208	1097	1131	1152	1137	1134	:
Carrying capacity, thousand tonnes										
Bulgaria	244.8	250.5	253.8	247	246.6	236.6	216.9	197.7	193.4	186.5
Romania	:	:	:	1514	1450	1470	1475	1468	1468	:

: - lack of data.

Source: Eurostat, 2018.

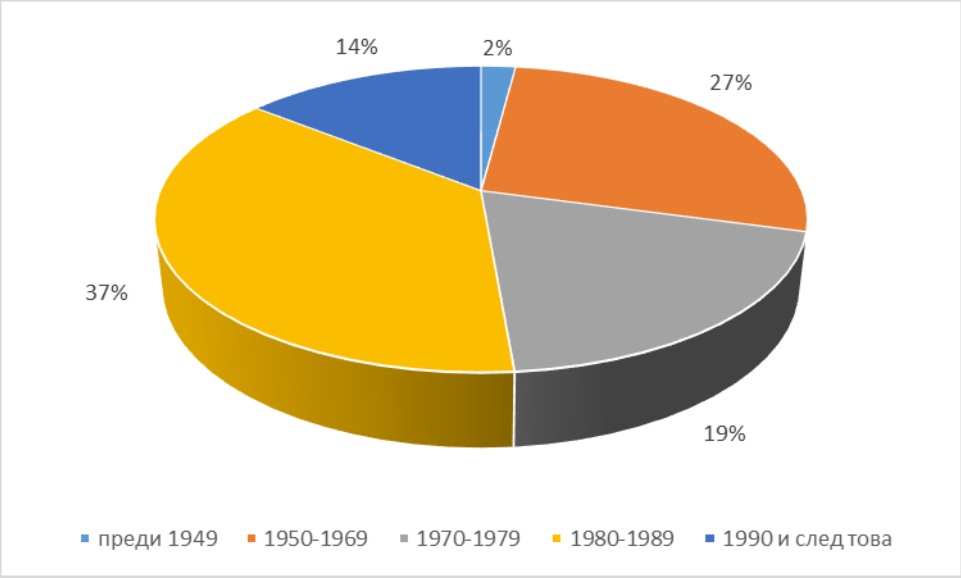
[4] Koralova P. Specifics of the Danube Fleet Management, Economic Studies, 6, 2017, pp. 118-152.

This age structure requires for the operators of vessels in both countries to constantly incur high maintenance costs in order to keep them in good condition, which reduces their competitiveness.

Romanian river transport provides transport average annual of about 30 000 thousand tonnes of goods for the period 2006-2016. Except for a more severe decline in the 2009 crisis, the volume of goods transported, in tonnes, is almost constant.

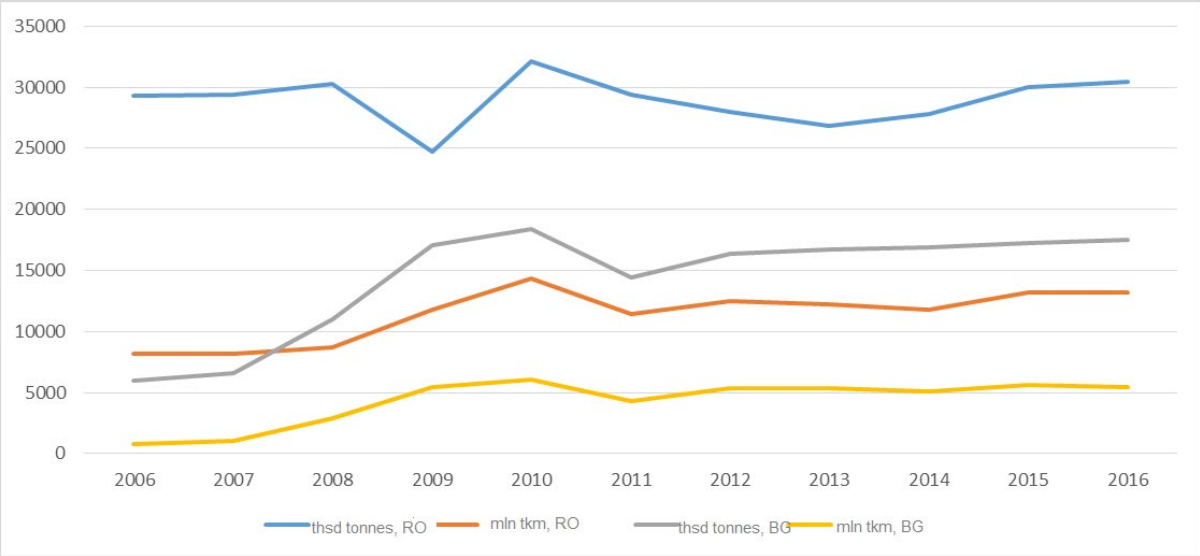
In contrast to Romania, the volume of goods transported in tonnes for the same period, increases significantly - from 5 950 thousand tonnes in 2006 to 17 467 thousand tonnes at the end of the analysed period. This represents a growth of nearly 3 times. Interestingly, during the country's 2009-2010 crisis, average annual growth is higher than in the years after the crisis, which indicates increased interest and restructuring of cargo flows in favour of cheap river transport.

Figure 1. Distribution of the tugs and pushers, used in Romania, by year of production



Source: Institutul Naţional de Statistică. Mijloace de transport existente, la sfârşitul anului 2016, 2017.

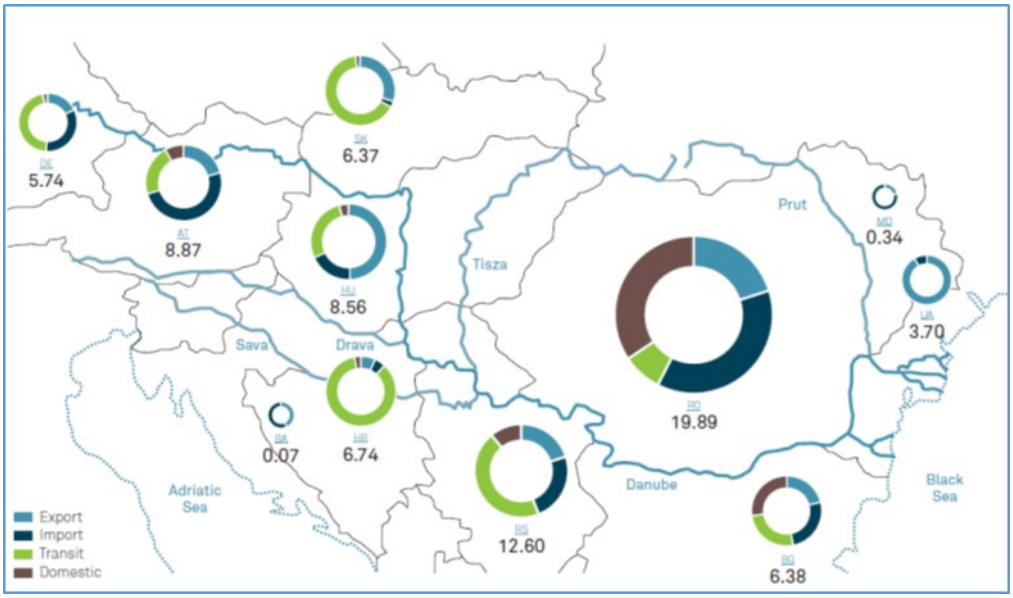
Chart 1. Goods transported by river transport in Bulgaria and Romania



Source: based on Eurostat data.

With these volumes of transported cargo, Romania ranks first among the other Danube countries, while Bulgaria together with Slovakia ranks 5-6.

Diagram 1. Distribution of trade flow, transported on the Danube River in 2016 by countries, thousand tonnes



Source: viadonau, Annual Report on Danube Navigation in Austria 2016.

A more accurate indicator of river transport performance measures the distance travelled and the weight of the cargo carried. By this index, the curves of the dynamics have almost the same variation. It can be noted that here the dynamics of transport in Bulgaria is higher than in Romania, due to the exceptionally low start base - 786 million tkm in 2006.

The modal distribution of transported goods carried shows that river transport services more than a quarter of the goods in Bulgaria, while in Romania this accounts for nearly 30% of the goods. Compared to the EU, this share is significantly higher, indicating the important position of river transport in the economy of both countries.

Table 2. Modal split of freight transport by land, % of tkm for 2015

Type of transport	road	rail	river	pipelines
EU	71,1	17,4	6,1	4,8
Bulgaria	53,0	17,3	26,6	3,1
Romania	37,1	30,8	29,7	2,3

Source: EC, EU Transport In Figures – Statistical Pocketbook 2017.

The structure of goods transported by Romanian river transport is dominated by two categories - ore, cast iron and steel, as well as processed and unprocessed mineral raw materials and construction materials. According to a study published in 2007, agricultural production and mineral fuels have a much lower and complementary share.

A major change is noticed 10 years later. The main goods transported in Romania in 2017 are agricultural goods - 28.7%, followed by minerals by 27.7% and construction materials - 20.7%. Coal with a share of 6,3% and petroleum products with a share of 4,6% are complementary.[5]

The structure of Bulgarian goods transported along the Danube River was more evenly distributed in 2007. The largest share of it belongs to processed and unprocessed mineral

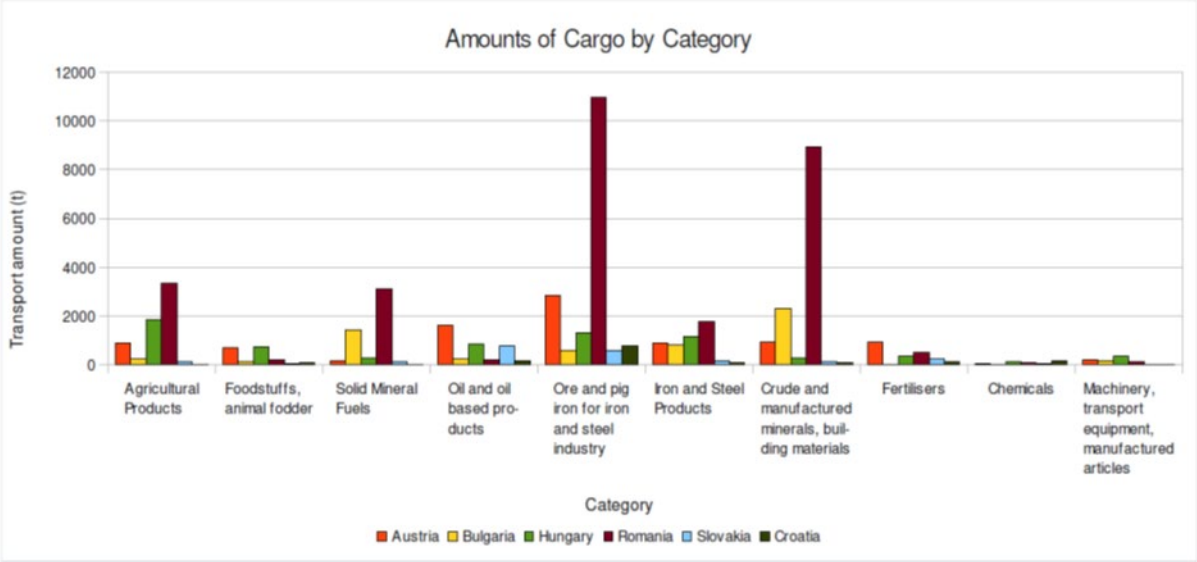
[5] Institutul Naţional de Statistică Transportul portuar maritim de mărfuri şi pasageri 2017, 2018.

raw materials and building materials, followed by mineral fuels. Cast iron and steel castings, ores and agricultural products are then ranked. The similarity between the goods transported in both countries is that they are mainly raw materials and goods with low added value.

After 10 years there are also significant changes in the structure of the goods transported by the Bulgarian river transport. The largest share in it belongs to agricultural production – 40% of transported cargo by volume and 39,9% by tkm. The most important place in this group belongs to grain foods with 35% of cargo by volume and 37,1% by tkm.[6]

The volume of work carried out in ports is measured by the mass of the cargo handled. The total mass of these goods in Bulgaria in 2012-2016 fluctuates between 3,831 and 4,568 thousand tons. In structural terms, the changes during this period are in the decrease of the imports and the coastal flows at the expense of a serious increase in the export of goods. These volumes, however, are at times lower than the capacity of all ports in the Bulgarian navigable part of the Danube, indicating the existence of unused available capacity.

Chart 2. Types of goods transported along the Danube River



Source: ZKR Market observations, 2007.

[6] Based on Eurostat data.

Table 3. Loaded and unloaded cargo in Bulgarian river ports by destination, thousand tonnes

	2012	2013	2014	2015	2016
Total	**3894**	**3831**	**4529**	**4568**	**3993**
Import - unloaded	1682	1529	1688	1708	1312
Export - loaded	805	1112	1410	1165	1459
Inshore	1407	1190	1431	1695	1222

Source: NSI, 2018

Passenger transport along the Danube is of secondary importance in transport activities. After 2013, our country has only one passenger ship with 243 seats. The total number of passengers transported has a decreasing trend, reaching 94,000 people in 2016, compared to 175,000 people in 2012. The average passenger transport distance is only 1 km. It should be noted that the dynamics of this indicator is influenced by the commissioning of Danube Bridge 2, as well as by other socio-economic factors.

The decreasing number of transported passengers leads to a decrease in the number of passengers passing through the Bulgarian ports. Since 2008, this figure has been shrinking continuously, falling by 2.5 times in 2015 compared to 2008.[7]

In Romania, statistics show 156,000 passengers transported within the national borders in 2016.[8]

The number of enterprises the activity of which is related to inland waterway transport and goods handling and transport of passengers on the Danube River in Bulgaria is 31 and in Romania –126 in 2014.[9] They employ 900-person staff in Bulgaria and 2000 people in

[7] MTITC. Integrated transport strategy in the period up to 2030,S., 2017.

[8] SC FIP CONSULTING SRL. Study on Waterways Planning in CBC Region, 2018.

[9] Based on EU data, EU Transport In Figures – Statistical Pocketbook 2017.

Romania, with a turnover of 42 million euro in Bulgaria and 102 million euro in Romania in 2015.[10]

1.3. State of port infrastructure in the cross-border region

River ports are considered to be complex dynamic systems that have a particular purpose, perform certain functions, they are composed of complex elements and are related to other modes of transport.[11] For these systems to work successfully, their constituent components need to function in synergy.

Each port performs certain basic and auxiliary functions. The main ones are the reception, handling and conveying of the delivered goods; storage and distribution of accepted goods; customs control and process monitoring; checking and handling of transport documentation accompanying cargo, etc. The auxiliary includes the provision of various types of services such as refuelling of ships, water and supplies (bunkering), maintenance and repair of vessels and transport units; cleaning of ships (waste, bilge water, etc.), etc.

An important condition for the quality performance of the functions of the river port is that its constituent elements meet certain technical, technological and organisational requirements. The technical elements include the different types of equipment, cargo storage areas and berths. These include the number of berths, the depth of the riverside, the number of loading and unloading devices, the dimensions of open and closed storage areas, etc. The technological components determine the purpose and specialisation of the port. Of importance are the technical means for handling, unloading and conveying different kinds of goods (bulk, volume, liquid, oversized loads and containers). The organisational elements are directly related to the status of the port - a public state enterprise or the ownership of a private person.

The main currently operating port quay mechanisation includes electric portal jib cranes, which are old (30-50 years old). There are very few purchased modern cranes. Even for handling containerships, the cranes, which are mainly used, are jib port cranes, instead of

[10] Same source.

[11] PINE, Prospects for Inland Navigation within Enlarged Europe, full final report, 2004, p. 150.

specialised gantry cranes. In many ports, new quay mechanisation has not been purchased for many years.

The main objectives and tasks that need to be fulfilled in the development of future design solutions for the development of transport schemes and technologies in port terminals should be directed towards providing technological equipment at modern technical level, meeting the conditions and volume of the work, which in turn ensures high reliability and safety for the personnel and the environment as well as preserving the commercial and consumer quality of the goods during their handling.

It is necessary to carry out constant monitoring of the state of the port infrastructure and the ways of its operation - the loading of stored materials and the mechanisation of the individual storage and reloading areas should not exceed the maximum admissible, as well as the taking of rapid and adequate measures in the detection of violations would provide a secure transport infrastructure to ensure the safety and security of the transport process. Furthermore, undoubtedly, a better strategically managed national port network has the potential to save time for cargo and passenger handling, also contributing to greater economic efficiency of investments (timely investment and as a result overall optimisation of the network usage). [12]

1.4. Connectivity of the region through land transport infrastructure

Inland ports make it easier to combine modes of transport - inland waterways, roads and railways operating as multimodal logistics chains. Rail and road transport act as partners of waterway transport for cargo and passenger transport before and after ports serving as primary interface. Over the last few decades, the Danube ports have undergone a major transformation from conventional inland ports to modern logistics centres. In addition to their core function of transhipment centres and storage sites, today's ports offer a wide range of logistics services, including commissioning, distribution and logistics of projects. Due to the fact that they serve as production sites as well as collection and distribution centres, they are extremely well integrated into the regional economies and contribute significantly to economic growth and job creation. The three most important port areas in

[12] *Integrated transport strategy in the period up to 2030*

terms of transhipment volumes of the Danube River are Izmail (Ukraine), Linz (Austria) and Galați (Romania). The port of Constanţa in Romania occupies a special place. It is connected to the Danube via the Danube-Black Sea Canal and plays an important role as a freight forwarding portal for the Black Sea, thus facilitating trade with Asia, the Middle East and the Black Sea region.

The Romania-Bulgaria cross-border region is accessible thanks to the Danube floating river, which is part of the 7 th pan-European transport corridor, which connects the Constanţa port with the industrial centres in Western Europe and the port of Rotterdam via the Black Sea canal. For its part, it crosses two TEN-T corridors linking Central and Northern Europe to the southeast of the continent and the Middle East. The Danube River is, on the other hand, a tight boundary between the two countries due to the lack of infrastructure for crossing the river, which hinders cross-border cooperation and the socio-economic integration of the territory.

Diagram 2. Accessibility and connectivity of the Romania-Bulgaria cross-border region [13]

The total length of roads in the cooperation area is 16 511 km, including the regional and municipal roads. The total public road density is 22.95 km/100 sq.km, which is very small compared to the EU25 average of 110 km/100 sq.km. The density of roads along the Danube River is far below the national level. The secondary and tertiary network is underdeveloped throughout the area and is poorly maintained, with a high risk of accidents. In addition, certain roads are predisposed to floods, to a greater extent those on the Romanian side of the Danube. Many roads have insufficient capacity, resulting in

[13] *Common Strategy for Sustainable Territorial Development of Romania-Bulgaria Cross-Border Region, 2015*

overloading and, accordingly, increases the travel time, vehicle operating costs, accidents and environmental damage.

The density of the functioning rail network is approximately 46.1 km per 1000 square km in Romania and 38.9 km per 1000 square kilometres in Bulgaria, which is below the average of the EU countries (65 km/1000 sq.km) and this ranks them in the last two places among the networks in the European Union. The main rail link between Romania and Bulgaria crosses the Danube River on the Giurgiu-Ruse Bridge, while the other railway line between Negru Vodă and Kardam shows reduced traffic (freight and passenger trains only).

From the analysis of the quality of road and rail infrastructure and of transport services in both countries, it is clear that they are further behind in the European ranking, although land transport has the largest share in both Romania and Bulgaria.

The region is served by 3 international airports in Romania: "Constanţa" (important during the summer season when taking flights from Paris, Strasbourg, Luxembourg, Bergamo, Pisa), "Craiova" (flights from London, Cologne/Bonn, Bergamo) and "Bucharest-Otopeni", closest to the border. In Bulgaria, the nearest airports are in Sofia and Varna, but a large part of the population in the Bulgarian border region often regularly uses the airport in Bucharest.

The available transport network does not provide good connectivity between the two countries, nor easy access of the border areas to the TEN-T corridors and major national corridors. In fact, only one highway "Bucharest-Constanţa" highway (220 km) passes through the cross-border area. This hinders the development of intermodal nodes that are vital to exploiting the potential of the Danube River for shipping and the economic development of the area.

1.4.1. Border infrastructure between Bulgaria and Romania

The border between the two countries is 610 km long, out of which 470 km is the water border along the Danube River. The border between Romania and Bulgaria is located between Pristol (Mehedinti County, Romania) in the west and Constanţa County, in the east, at a distance of 631.3 km.

The river border is the inland waterway along the 470 km stretch of the Danube River (from kilometre 845,650 to kilometre 374,100), bounded between the right bank of the river and

the demarcation line of the border between the Republic of Bulgaria and Romania, defined in accordance with the Convention for the delimitation of the river border on the Danube, between Bulgaria and Romania from 1908. The border is between the towns of Vidin (Bulgaria) and Silistra (Bulgaria), respectively Calafat and Calarasi (Romania). The Danube River creates great opportunities for the development of water transport. It is the largest international river road through which Bulgaria is connected with the countries of Western and Eastern Europe. This creates conditions for lively commercial connections with these countries, great opportunities for tourism, as well as other economic activities. The important for the economic development corridor Bucharest-Giurgiu-Ruse-Veliko Tarnovo is located in the surveyed region, and it should be used. There are also pairs of towns on both sides of the Danube River: Vidin - Calafat, Bechet - Oryahovo, Turnu Magurele - Nikopol, Calarasi - Silistra, which can significantly contribute through their cooperation to the achievement of the regional development goals following the established example of cooperation between Giurgiu and Ruse. Additional benefits for the region can also be derived from its cultural and territorial diversity. The cross-border region Romania-Bulgaria is accessible mainly through the navigable Danube River, forming part of the 7th Pan-European Transport Corridor, which through the Black Sea channel connects the port of Constanța with the industrial centres in Western Europe and with the port of Rotterdam. For its part, it crosses two TEN-T corridors linking Central and Northern Europe to the southeast of the continent and the Middle East. The Danube River is, on the other hand, a tight border between the two countries, Bulgaria and Romania, due to insufficient infrastructure for crossing the river, which hinders cross-border cooperation and the socio-economic integration of the territory.

The land border is 139.1 km long, passing through Dobrudja, between Calarasi - Silistra and the Black Sea, separating Constanța County (Romania) from the districts of Silistra and Dobrich (Bulgaria) between the Danube and the Black Sea. It starts from the town of Silistra and ends with the Romanian village of Vama veche, situated on the Black Sea coast. The flat terrain of Dobroudja allows for road and rail roads. This border is crossed by the railway line “Razdelna – Kardam – Medgidia – Ungheni” /the shortest road between Bulgaria and CIS/ and road “Istanbul – Burgas – Varna – Constanța”. An electrical interconnector from Ukraine and a gas pipeline from Russia pass through here.

The sea border is 22.2 km long and covers a strip of coastline with a width of 20 km. The development of the sea border is also associated with a number of problems. First of all, this is the severe ecological status of the Black Sea caused by the big rivers Danube, Dnipro, Dniester and others. Coastal sewage also contributes significantly pollution. Due to the limited self-cleaning ability of the sea, fish wealth has greatly reduced, and the changes in biocoenosis are taking alarming proportions. In addition, there are insufficient transport links in the Bulgarian part with the interior of the region, which leads to under-utilisation of the coastal lands.

1.4.2. Border-crossing infrastructure on the Bulgaria-Romania border

There are three types of infrastructure to cross the border: river, road and air.

A serious barrier on the way of cooperation is the absence of border crossing points. Along these 470 km of the Danube River there are two bridges, both road and rail, and more ferry crossing points.

Table 4. Infrastructure border crossing facilities between Bulgaria and Romania

Link	Type of transport
Vidin - Calafat	Bridge (road and rail)
Lom – Rast	Ferryboat
Oryahovo – Bechet	Ferryboat
Nikopol/Somovit – Turnu Măgurele	Ferryboat
Svishtov - Zimnicea	Ferryboat
Ruse - Giurgiu	Bridge (road and rail)
Tutrakan - Oltenița	Ferryboat
Silistra - Călărași	Ferryboat

Link	Type of transport
Kardam – Negru Vodă	Land crossing points are located along the Black Sea coast
Durankulak - Vama Veche, as well as south of the Danube, between Silistra and Ostrov.	
Constanța, "Mihail Kogălniceanu" International Airport	Air transport
Craiova, international airport	Air transport
Gorna Oryahovitsa, international airport	Air transport
Ruse, municipal airport	Air transport

In addition to the two international airports on the Romanian side, good prospects for regional development is the Tulcea Airport in Constanța County. There is a potential for development at both airports operating in the Bulgarian part of the cross-border region - Gorna Oryahovitsa and Ruse.

Passenger traffic data and crossing frequency at checkpoints report moderate levels, with less than 61% of those crossing the border being of Romanian or Bulgarian origin. The exceptions are the "Ruse-Giurgiu" bridge and the "Vidin-Calafat" bridge over the Danube River, which are the most used points for crossing the border by the Romanian, Bulgarian and international traffic.

During the pre-accession period, improvements have been made to border crossing facilities with the support of the Phare CBC funds (1999-2004). Rehabilitation of the railway infrastructure and activities related to the safety of the infrastructure of the "Giurgiu-Ruse" bridge were carried out. Two mirror projects on both sides of the border have been implemented to improve connectivity through ferry connections and border crossing points Nikopol (Bulgaria) - Turnu Magurele (Romania) and Silistra (Bulgaria) - Calarasi (Romania).

During the 2007-2013 programming period, joint Romanian-Bulgarian projects have been implemented to improve mobility and accessibility in the region. As a result of the implementation of Cross-Border Cooperation Programme Romania-Bulgaria 2007-2013, there is increased mobility and interconnection in the cross-border region - 169 km built/modernised roads serving about 500 000 people.[14] An example of such a project is "SMART" – "Sustainability, mobility, accessibility in the cross-border region Constanța - Dobrich - transport infrastructure". The activities are focused on the renovation of road sections in Dobrich and the supply of road equipment in Constanța. Dobrich Municipality implements full reconstruction of important road sections, which have a role as a transport entrance-exit of the city in the direction of Constanta.

Although the Danube has the function of a major artery of the European transport system, it has less importance than expected in the economy and transport in the cross-border region. At present, only 10-15% of its transport capacity is used. Important for the development of the Rhine/Maas-Maine-Danube river transport axis (TEN-T Priority Axis), which is the main cargo route linking the Rotterdam port from the North Sea to the Black Sea (especially Constanta and the Bulgarian ports), as well as with the river ports located on the inland waterway.

The main problem is the crossing capacity of the border checkpoints between Bulgaria and Romania, especially at Danube Bridge "Ruse-Giurgiu", most often for the outgoing and incoming cargo traffic from and to the Republic of Bulgaria, and often for passenger vehicles traffic.[15] According to a document by the Bulgarian-Romanian Chamber of Commerce and Industry (BRCCI), it is necessary to take measures to expand the border checkpoint at Ruse and to open a new checkpoint on the Bulgarian side of the bridge. There are possibilities that need to be analysed to find new ferry lines that could partially take away the traffic from the Danube Bridge at Ruse-Giurgiu. The BRCCI has information on existing interest and willingness on the part of investors, but coordination is needed to investigate the possibilities and organise the crossing checkpoints.

[14] *Interim report on the closure of the programmes co-financed by the European Union and the countries of the European Economic Area for the 2007-2013 programming period as well as the progress made under the programmes for programming period 2014-2020 (based on data as of June 30, 2016)*

[15] *http://www.brcci.eu/problemi-pri-preminavane-na-gkpp-bulgaria-romania*

State of the transport links for land transport (road and rail)

Transport link	Ruse - Giurgiu
Type of transport	Bridge (road and rail)

Diagram 3. Map of Danube bridge "Ruse-Giurgiu"[16]

Danube bridge "Ruse-Giurgiu" (for rail and road transport) was built almost 60 years ago and provides connection with the countries of Western, Central and Eastern Europe, Greece, Turkey and the Middle East. The rail and road transport traffic is extremely intensive. As a result of the long exploitation, the road infrastructure next to the "Danube Bridge" Border checkpoint is in extremely poor condition and is need of renovation, as well as of complete reorganisation of the traffic, aestheticisation of the surrounding areas, construction of parking lots, placing of horisontal and vertical marking and signalisation. The bridge itself needs a major overhaul of the road section and modernisation of the lighting.

Connecting infrastructure:

Bulgaria: first class road I-5 (E85: Ruse - Veliko Tarnovo), first-class road I-2 (E70: Ruse - Varna), second-class road II-21 Ruse - Silistra, third-class road III-501 (Ruse - Dve Mogili - Byala), which are an entrance and an exit in the Republic of Bulgaria through the "Danube Bridge" Border checkpoint.

[16] *Regional strategy for development of Ruse Region 2014-2020*

Transport link	Vidin - Calafat
Type of transport	Bridge (road and rail)

Diagram 4. Map of Danube bridge 2, "Vidin-Calafat"[17]

The bridge was opened in 2013. The bridge has a length of 1 971 m, and it has two lanes in each direction, a single electrified railway line and a bicycle lane. Infrastructure works include the construction of a new freight train station and 7 km of a new railway line, reconstruction of the existing passenger station and construction of four road junctions with two levels.

Connecting infrastructure:

Bulgaria: The first-class Republican road I-1 from Vidin to Botevgrad connects the bridge with "Hemus" highway. A shorter way to Sofia is possible through Petrohanski passage, which is picturesque but also more difficult to pass. There is a planned extension of the road from Vidin to Botevgrad to become a speedway.

Romania: The shorter route to Hungary via Drobeta-Turnu Severin is fully rehabilitated and of good quality but it passes through settlements.

Danube Bridge "Vidin-Calafat" is of key importance not only for the future development of the Trans-European Transport Corridor IV but also for the whole south-eastern transport axis of Europe and the Trans-European Transport Network with the opportunities to be found for combined transport and for the transfer of certain traffic volumes from road to rail.

[17] *http://www.vidincalafatbridge.bg/bg/page/115*

The railway connection between Bulgaria and Romania is made through:

- Railway border crossing “Ruse – Giurgiu-North” with common border station for freight trains Ruse rail yard and for passenger trains Ruse, and with border station “Giurgiu-North”;
- Railway border crossing “Kardam–Negru Vodă” with exchange border station “Negru Vodă” and border station “Kardam”;
- Railway border crossing “Vidin-Calafat” with common border stations “Vidin passenger” for passenger trains and “Vidin freight” for freight trains, on the territory of the Republic of Bulgaria and border station “Golenți”, on Romanian territory.

The road network connecting Bulgaria and Romania consists of the following roads:

- First-class road I–7 (Border Romania – m.r. Silistra – m.r. Dulovo – m.r. Shumen – m.r. Preslav – Varbitsa – Beronovo – Marasha – m.r. Yambol – m.r. Elhovo – Granitovo – Melnitsa – Lesovo – border Turkey);
- First-class road I–9 (Border Romania – Durankulak – Shabla – m.r. Kavarna – Balchik – Obrochishte – Kranevo – Zlatni pyasatsi – Sveti Konstantin – Varna – Staro Oryahovo – Obzor – m.r. Slantchev bryag – Burgas – Marinka – Zvezdets – Malko Tarnovo – border Turkey);
- Second-class road II-29 section of E70 (Dobrich – General Toshevo - Kardam – border with Romania);
- Third-class road III-293 (Aleksandria – Koriten – Severnyak, which is entirely on the territory of Dobrich region and crosses the border with Romania).

State of the transport links for water transport

The main Danube ports on the Romanian-Bulgarian border are: “Calafat”, “Turnu Măgurele”, “Giurgiu”, “Oltenița”, “Călărași” in Romania and “Vidin”, “Lom”, “Oryahovo”, “Svishtov”, “Ruse”, “Silistra” in Bulgaria. They are important for the cargo transport, as well as for the tourists, arriving in Giurgiu and Oltenița (for one-day visits to Bucharest, Ruse,

Svishtov, Veliko Tarnovo, etc.), however the existing port infrastructure needs development. Also, year-round Danube navigation throughout the year (including during periods of drought or harsh winter) is another issue that requires attention and both countries have agreed on this with a memorandum signed in 2012.

The currently functioning ferry connections are “Oryahovo – Bechet”, “Nikopol - Turnu Măgurele” and “Svishtov – Zimnicea”.

Transport link	Oryahovo – Bechet
Type of transport	Ferryboat

Diagram 5. Route Bulgaria–Romania through ferryboat link “Oryahovo-Bechet”[18]

Ferryboat complex “Oryahovo” was opened in 1994 and it is an important transport link with Romania and Europe. The ferryboat link connects the towns of Oryahovo and Bechet. The potential of the Oryahovo Border checkpoint and the two ferryboats – Romanian and Bulgarian, allows handling 200 outgoing and 200 incoming heavy trucks for 24 hours. The improvement of the border connections, by modernising the ports and expanding the infrastructure at the transport nodes, will facilitate cross-border cooperation activities with the Danubian regions in the Danube River basin.

Connecting infrastructure:

Bulgaria: second-class roads II-15 (Vratsa - Miziya – Oryahovo) and II-11 (Vidin – Lom – Oryahovo - Gulyantsi – Nikopol).

[18] *http://www.ferry.bg/*

An important infrastructure project for the Pleven region is the rehabilitation of the Pleven - Knezha - Oryahovo transport link through which the axis may be “unlocked” to the north with access to the “Oryahovo-Bechet” ferryboat.

Transport link	Nikopol - Turnu Măgurele
Type of transport	Ferryboat

The “Nikopol-Turnu Măgurele” ferryboat has been functioning since 2010. The distance between the two banks is 800 m, using the smallest length between the two sides. The crossing of the river by the Romanian ferry takes 8 minutes, and by the Bulgarian one - about 15 minutes. The Romanian platform has a capacity of 6 TIR trucks.

Connecting infrastructure:

Bulgaria: second-class road II-52 (Nikopol – Svishtov – Byala (Ruse – Veliko Tarnovo), serving the northern river areas of the Pleven region, which is part of the Danube panorama road and second-class road II-34 (Nikopol - Pleven) - connection of the regional town of Pleven with the port of Nikopol.

Transport link	Svishtov – Zimnicea
Type of transport	Ferryboat

Diagram 6. Route Bulgaria–Romania through ferryboat link "Svishtov-Zimnicea"[19]

The ro-ro ferry crossing the Danube between Svishtov (Bulgaria) and Zimnicea (Romania) provides the shortest connection between Bulgaria - Romania - Central and Western Europe, as well as for Sofia, Central and Southern Bulgaria and Turkey and the Middle East. The ferry is served by two ships and it takes 15 minutes to cross the river.

Connecting infrastructure:

Bulgaria: Diversions along the road to the "Svishtov – Zimnicea" ferry include: the town of Polski Trambesh to Svishtov; "Byala" station through Tsenovo to Svishtov; on main road "Sofia – Ruse" at the village of Balgarene to Svishtov.

Romania: The route diversion is at Aleksandria or Roșiori de Vede to Zimnicea.

1.5. State of the waterways and transport on the Danube River in Romania and Bulgaria

The most important inland waterway in Romania and Bulgaria is the Danube River, Pan-European Corridor VII, in terms of water potential. With a length of 2,845 kilometres, the Danube is the second longest river in Europe after the Volga. In one of its first hydrographic publications, the European Commission for the Danube, established in 1856, states that the Danube originates from the merger of its two major streams, Bregge and Brigach, at

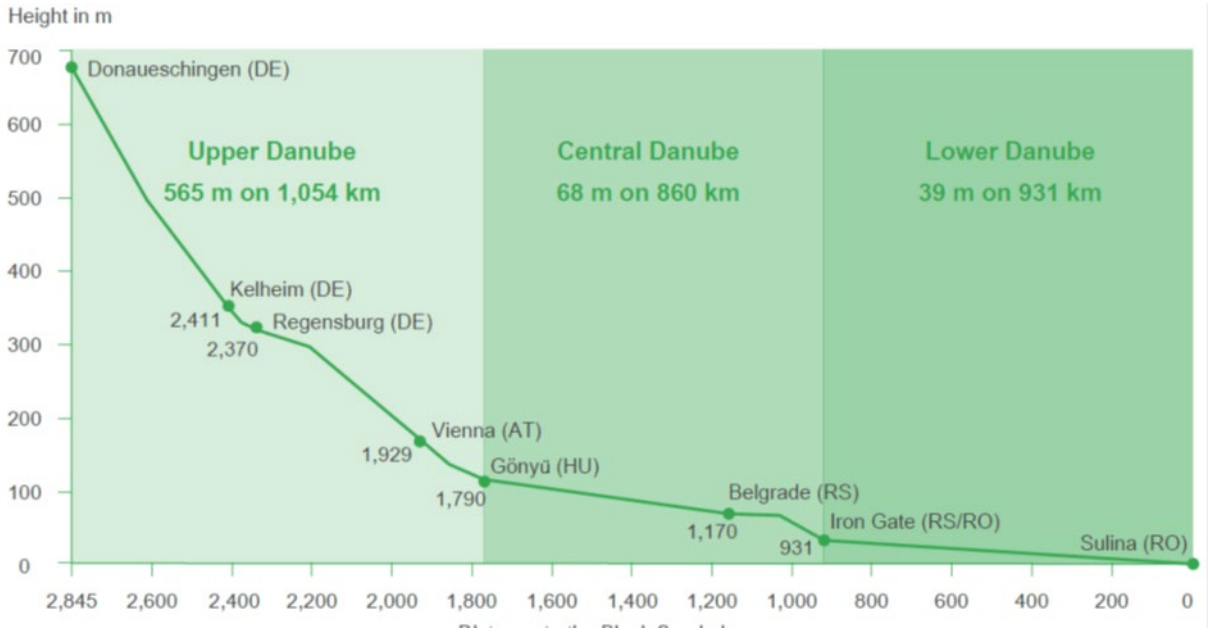
[19] *http://www.ferry.bg/*

Donaueschingen in Schwartzwald in Germany (this city was adopted as the starting point of the Danube River), and this river merger has a length of 2,845 kilometres (measured to its mouth in the Black Sea at km 0 at the Sulina River at the average distributor of the Danube Delta). When measuring the distance from the origin of the longest of the two outlines, Breg, in Furtwangen to the Black Sea along the Sulina River, the total length is 2,888 kilometres. The Danube River can be divided into three main parts - upper, middle and lower parts of the section.

Due to the high gradient in the first third of the course (over 1,055 kilometres), the upper Danube has the characteristics of a mountain river. For this reason, almost all river power plants are taking advantage of the water flow gradient in this part of the Danube. Only after the gradient change in Gönyű in the northern part of Hungary (river-km 1 790) the river gradually turns into a low river.

While the Upper Danube has an average height difference of just over 0.5 metres per kilometres, the average difference in height of the Lower Danube is just over 4 centimetres per kilometre. The following illustration shows the curve of the Danube River gradient from its source in Donaueschingen to its mouth in the Black Sea.

Figure 2. Gradient curve of the Upper, Central and Lower Danube



Source: via dunau.

The Danube River originates in Schwarzwald in Germany and drains into the Black Sea in Romania and Ukraine. The river has a length of 2,845 kilometres, of which 2,250 kilometres are navigable, connecting ten rivers. From an early history, the Danube is a major trade route in Europe. It is an important source of energy and drinking water, as well as a unique wildlife habitat and recreation area.

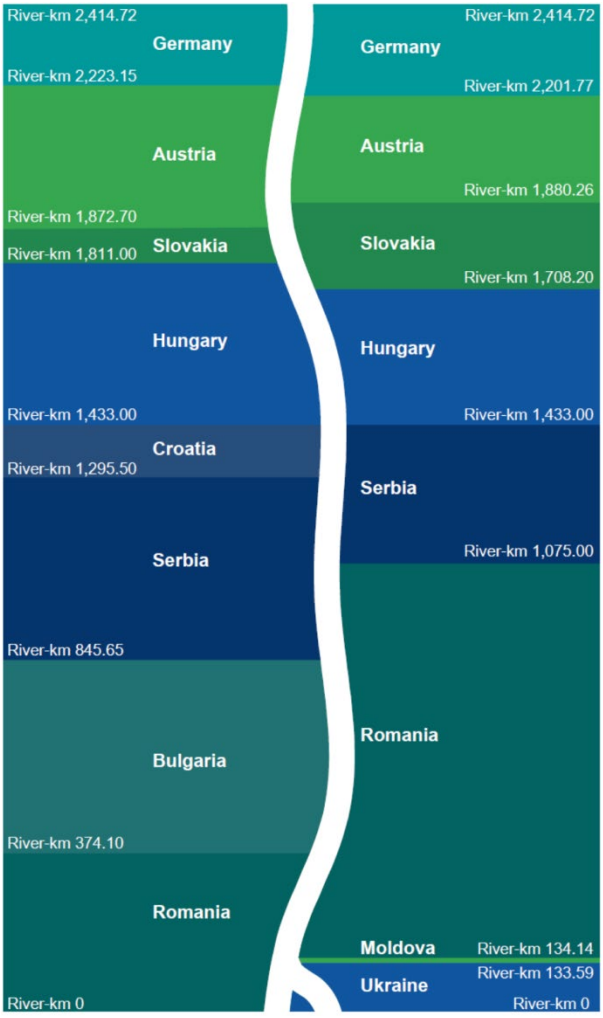
The area of the river basin is the area of the land where all the water from land surfaces, streams and groundwater sources flow into the river. The Danube River basin covers 801 463 km2. It is located to the west of the Black Sea in Central and Southeast Europe. In terms of the average inflow, the five main tributaries of the Danube River are Sava (1,564 m^3 / sec), Tisa / Tisza / Tysa (794 m^3 / sec), Inn (735 m^3 / sec), Drava / Drau (577 m^3 / sec) and Siret (240 m^3 / sec).

The longest tributary of the Danube River is Tisa /Tisza/Tysa with length of 966 kilometres, followed by Prut (950 kilometres), Drava/Drau (893 kilometres), Sava (861 kilometres) and Olt (615 kilometres).

The length of the navigable waterways in the Danube basin (the Danube, including all navigable distributaries and side arms, canals and tributaries) reaches approximately 6,300

kilometres. 58% or 3600 kilometres of these are waterways of international importance, ie. waterways with UNECE Class IV or higher.

Figure 3. Location of the countries along the Danube River



Source: via dunau.

1.5.1. Legal and organisational framework for maintenance of the navigation on the Danube River

The main objective regarding the maintenance and optimisation of the waterway infrastructure by the riparian Danube countries is the creation and the year-round provision of internationally harmonised parameters of the fairway.

The recommended minimum fairway parameters for European waterways of international importance - including the Danube - are listed in the European Agreement on Main Inland Waterways of International Importance – AGN/ (United Nations Economic Commission for Europe 2010). With regard to the fairway depth to be provided by the waterway administrations, AGN makes the following provisions: For waterways with variable water values, the minimum vessel load value of 2.5 metres shall be reached or exceeded on average 240 days a year. For the northern stretches of natural rivers characterised by frequent water levels due to weather conditions (for example in the Upper Danube), it is recommended to refer to a period of at least 300 days on average per year.

Based on the Convention regarding the regime of navigation on the Danube River, signed in Belgrade on August 18, 1948 (the Belgrade Convention), the Danube Commission recommended the following parametres of the Danube waterway fairway: 2.5 m minimum depth of the fairway), respectively 2.5 m minimum vessel load (2013) below law navigable water level (LNWL), i.e. an average of 343 days per year) on free flowing stretches and a minimum fairway width of 100 to 180 metres, depending on the specific characteristics of the the relevant river section (the Danube Commission 1988 or the Danube Commission 2011).

On June 7, 2012, transport ministers of the riparian Danube countries met for the first time during the EU's Council of transport ministers in Luxembourg, to agree on a Declaration on effective waterway infrastructure maintenance on the Danube and its navigable tributaries. The declaration appeared as a reaction to the low drainage of the Danube in the autumn of 2011, which revealed the shortcomings of some countries in maintaining the waterway infrastructure. The riverside countries are committed to maintaining adequate fairway parametres for good navigation status under the provisions of the “Belgrade Convention” and for countries that have ratified the European Agreement on Main Inland Waterways of International Importance - AGN. The Danube transport ministers will meet once a year to follow up on the conclusions of this meeting and to coordinate their actions for the implementation of the objectives of the declaration within the governance structure of the European Strategy for the Danube Region (EUSDR) and the European Coordinator of the the Trans-European Transport Network (TEN-T), responsible for the inland waterways. The declaration is signed by all riparian countries except Hungary.

1.5.2. Waterway dimensions

On inland waterways, the movement of ships and crews is allowed not across the whole width of the waterway, but only in that part which is prepared for navigation and is marked with special navigation signs. This part of the river is called waterway. It is characterised by depth – $h_{кп}$, width – $B_{кп}$, curve radius – R_{min}, height of navigable free passage and air lines. These are waterway dimensions.

In order to ensure safe navigation, the waterway dimensions must be such that, when the largest ships allowed to navigate along the respective waterway are passing, the minimum vessel draft is ensured, there is sufficient width for the vessels to pass each other and for outsailing and there is the necessary curve radius.

The waterway depth (hкп) shall be calculated as the sum of ship's draft $h_г$ and and the stock under the ship's bottom Δh, determined under the Rules of navigation depending on the waterway depth:

$h_{кп} = h_г + \Delta h$ (1)

The following definitions and water levels ranges for the Danube River in the Bulgarian section are adopted:

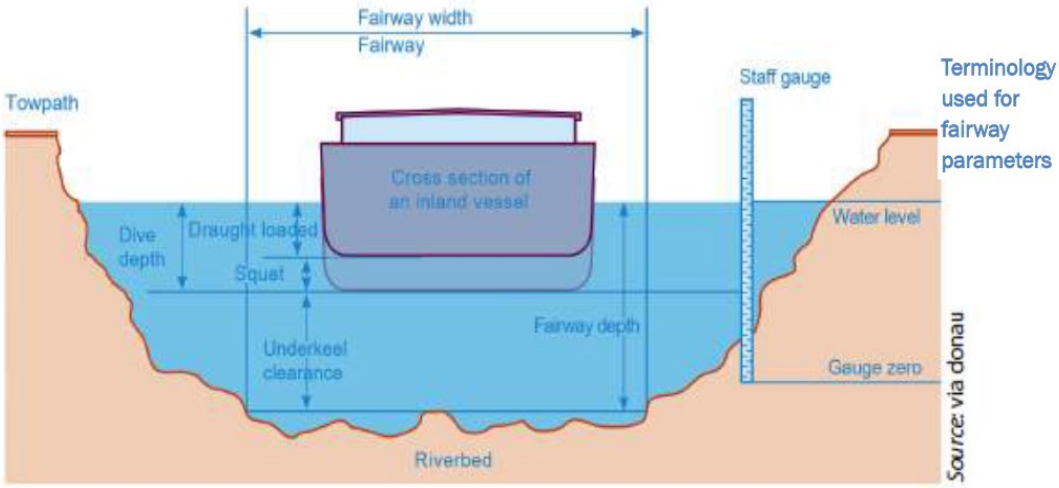
- low level: under 200 cm;
- average level: from 200 to 500 cm;
- high level: over 500 cm.

The waterway width (Bкп) with one-sided movement is defined as the sum of the width of the relevant ship and gear (B_C) and the width stock to the end of the waterway route (ΔB_1):

$B_{кп} = B_C + 2\Delta B_1 \approx 2B_C$ (2)

The minimum curve radius of the waterway shall be determined according to the length of the estimated composition L_C: $R_{min} \geq 3L_C$ (4)

Useful altitude of the navigable passageways below the bridges and air lines is called the distance from the water surface to the lowest point in the design of the relevant bridge or the relevant air line.



1.5.3. Characteristics of the navigation conditions

The Danube River is the second longest river (2,845 km) on the European continent and is of paramount importance for the countries through which it passes: Germany, Austria, Slovakia, Hungary, Romania, Bulgaria, Croatia, Serbia, Ukraine and some parts of Switzerland , Poland and Moldova. As part of the "Rhine - Main – Danube" Canal, the river facilitates the international trade from the Black Sea to the North Sea.

Depending on the navigation conditions, the Danube is divided into three main sections:

- **Upper Danube –** from the springs to Vienna – the river bed is not wide, but it is sufficient for navigation. The highest water level of the river in this section is between May and August[20], and the lowest water levels are reported between October and March;
- **Middle Danube –** from Vienna to Iron Gate. The highest water level of the river is in April and March, and low water is observed between August and October;

[20] *Via-Donau, http://www.donauschifffahrt.info/daten_fakten/verkehrsweg_donau/eckdaten/, 2006,*

- **Lower Danube –** from Iron Gate to Sulina. Fluctuations in the water level of this section are observed during the same periods of the year, which are characteristic of the Middle Danube.

Diagram 7. Danube River navigable waterway

With the opening of the "Rhine - Main – Danube" Canal, the importance of the river for the cross-border region is increasing because the country has the opportunity to have a direct water connection with the countries of Western and Northern Europe. The Danube is characterised by a complex shipping regime. The rules for its use are governed by special international treaties, conventions and agreements that guarantee the free navigation of all countries subject to certain security and fault-free rules.

In order to adopt a relevant water section for sailing, it is necessary that it meets certain requirements such as the depth of the fairway; river bed width; number, density and clearance of the bridges; number of locks, etc. On the basis of these indicators, the EU's Council of transport ministers has adopted a decision[21], according to which Europe's inland waterways are classified into different categories in order to determine which types of vessels (depending on their technical and operational parameters) can be used in cargo transport.[22]

[21] *Resolution № 92/2 of the European Conference of Ministers of Transport, Brussels, 1992*

[22] *GIFT TRANSPORT NETWORK PROPOSALS (CORRIDOR VII).*

Table 5. Parameters of the main categories of inland waterways, suitable for navigation

Navigation inland waterway category	Measurements of the vessels			Length of bulwark opening
	Length	Width	Draft	
from I-st to III-rd	up to 80 m	up to 9 m	1.40 – 2.20 m	4.00 – 5.00 m
IV-th	80 – 85 m	9.50 m	2.50 m	5.25 – 7.00 m
V-th a	95 – 110 m	11.40 m	2.50 – 2.80 m	7.00 – 9.10 m
V-th b	172 – 175 m	11.40 m	2.50 – 2.80 m	7.00 – 9.10 m
VI-th a	95 – 110 m	22.80 m	2.50 – 4.50 m	7.00 – 9.10 м
VI-th b	185 – 195 m	22.80 m	2.50 – 4.50 m	7.00 – 9.10 m
VI-th c	270 – 280 m	22.80 m	2.50 – 4.50 m	9.10 m
	195 – 200 m	33 – 34.20 m	2.50 – 4.50 m	9.10 m
VII-th	285 m	33 – 34.20 m and more	2.50 – 4.50 m	9.10 m

Source: Blue Book: Inventory of main standards and parameters of the E-waterway network.

According to the defined parameters and categorisation of the inland waterways of Europe, the Bulgarian section of the river Danube falls in class VII. The technical parameters of the water sections falling under categories VI and VII may provide safe navigational conditions for the movement of ships carrying oversized, heavy and bulk cargo as well as containers stacked on three or four levels.

In addition to the listed technical parametres and quantitative indicators characterising the density and category of Danube inland waterways, there are also factors influencing their capacity, namely:

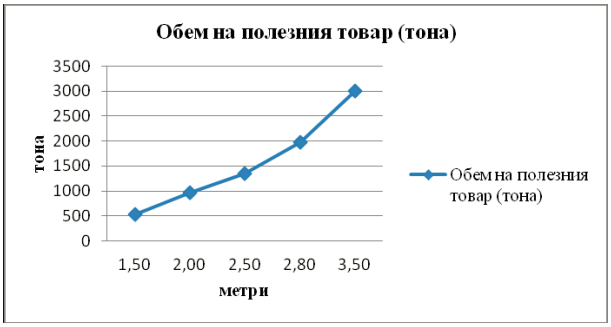
- Shipping to be carried out at any time during the scheduled navigation period;
- The navigation period may be shorter than 365 days a year only when the state of a given river stretch is affected by climatic conditions and ice formation may occur.

Therefore, the quality of the riverways and their adjacent facilities is essential for the regular and safe cargo transport, as it serves to define:

- The maximum permissible speed and size of the vessels;
- Permissible draft depth, which is directly related to the type and volume of the transported cargo;
- The permitted width of the fairway on which the shipping safety depends.

The study of the relationship between the condition and the peculiarities of inland waterways and ground facilities and the technical and operational characteristics of the vessels is an important prerequisite for improving the performance of the river fleet. The load capacity and load capacity ratios have a direct impact on the performance of transport operators and indirectly on the amount of variable costs.

Figure 3. Volume of the transported payload and fairway depth [23]

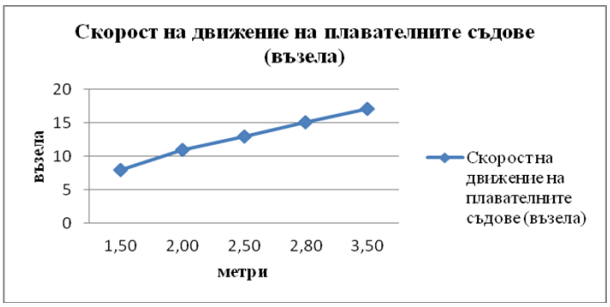


There is a direct proportionality between the volume of payload and the depth of the fairway. This dependence gives reason to conclude that vessels with lower load capacity and draft depth are used in unfavorable shipping conditions, i.e. at values of

the technical parameters of the fairway below the allowable. In each improvement of the technical characteristics of the river and ground facilities, the depth of the ship's draft is increased and an inverse impact on the total amount of the variable costs.

[23] *GIFT TRANSPORT NETWORK PROPOSALS (CORRIDOR VII)*

Figure 4. Vessel movement speed (knots)[24]



Direct proportionality is also noticed with the fairway depth's impact on the speed of ships. Improvement in navigation conditions is accompanied by the possibility of achieving higher movement speed of vessels.

Increasing the speed of traffic is a factor that has a positive impact on the regularity of the transportation and the total time of movement of the ships. Improving these quality indicators is important for increasing the efficiency of conducting cargo transportation by river transport.

Navigation conditions on Danube inland waterways are also affected by seasonal fluctuations of the river level (high water, low water and ice formation) and the presence of narrow stretches along the waterway. Controlling these phenomena in many cases is impossible and has a negative impact on shipping. At certain times of the year the level of the Danube fluctuates to a varying extent in the different sections due to the specific features of the climatic and geological conditions.

There are significant fluctuations in the permissible depth of drafting of the vessels in the Bulgarian section of the Danube River. There are periods in which shipping restrictions are extremely long-term, resulting in outflow of cargo flows to and from Bulgaria and reallocation of cargo traffic to other modes of transport. Between 12% and 18% of the days of the year, the Danube River basin is inappropriate for safe navigation during the examined ten-year period.

The presence of low water in the summer months in certain places necessitates the transfer of river ships in order to reduce their drafting depth, which in turn prolongs cargo delivery times and increases the cost of transport services.

[24] *Source: Danube Commission*

Ice-water formation is another phenomenon that has a negative impact on the rhythm and efficiency of cargo transportation. The occurrence of such force majeure is accompanied by an increase in the variable costs of river operators and a decrease in consumer demand due to an increase in the cost of transport services.

Another weakness of a section of the Danube in the cross-border region is the presence of narrow stretches. These waterways of international importance belonging to the European inland waterway system and whose parametres do not meet those approved for classification in the relevant category are defined as bottlenecks.[25] The presence of bottlenecks along the Danube is a sign of unsatisfactory quality of waterways and hampered shipping. The inadequate depth of the fairway limits the rational utilisation of vessel load capacity and therefore it is possible to transport only certain types of cargo, and this is directly related to the loss of inland waterway market positions and the decrease of consumer demand.

In the field of inland waterway transport, the current maintenance of the shipping route, incl. navigation and route situation on the Danube River is carried out by Executive Agency "Exploration and Maintenance of the Danube River" (EAEMDR) under the rules of the Convention for the shipping regime (SG 112/1949) and the Agreement between the Governments of the Republic of Bulgaria and the Republic Romania from 1955 pursuant to Art. 39 of the Convention and according to Art. 77, 82 and 83, para. 2 of the Law on Maritime Spaces, Inland Waterways and Ports Of The Republic Of Bulgaria. According to the Convention, no fees for ship transit are established, with the maintenance costs being financed by the Republican budget.

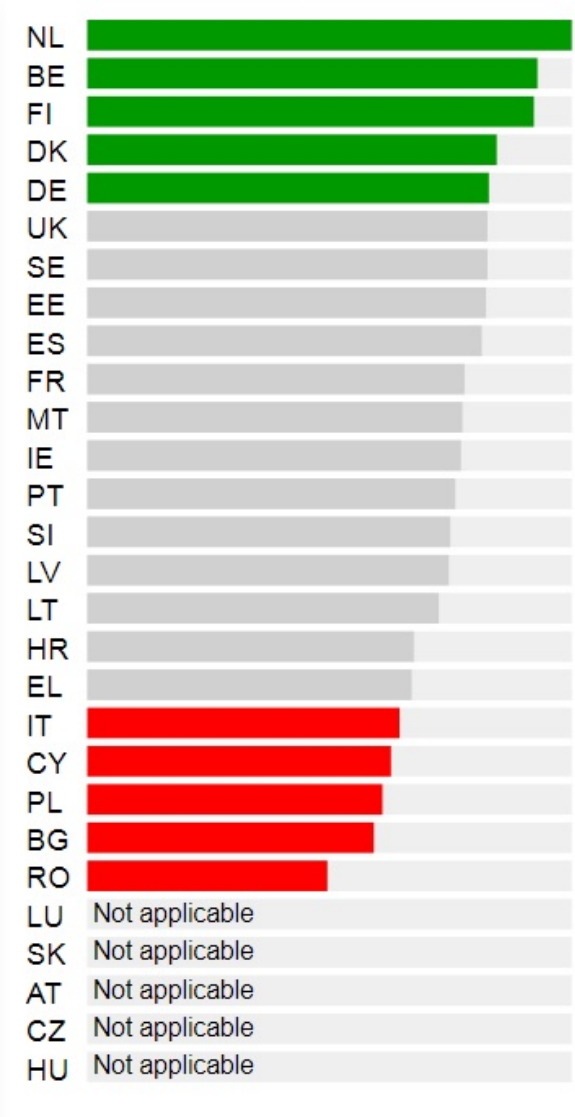
1.5.4. Problems in the construction and maintenance of waterway transport infrastructure

In terms of port infrastructure quality, in 2016 Bulgaria occupies the 70th place and Romania is 98th among 137 countries according to the Global Competitiveness Report 2016-2017. The Netherlands has a leading position not only in Europe but also globally for best port infrastructure.

[25] *Inventory of Main Standards and Parameters of the E Waterway Network, "Blue Book", second revised edition, UNECE, 2012, p. 3.*

Within the European Union, the two countries in the cross-border region and among the EU Member States - Bulgaria and Romania rank amongst the last in the quality of the port infrastructure.

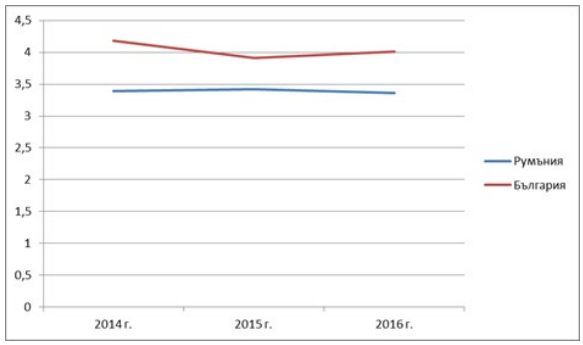
Figure 5. Assessment of port infrastructure quality in the EU (2015-2016) [26]



According to Eurostat, the assessment received by Romania for the period 2013-2014 is 3.39; 2014-2015 is 3.42, and for 2015-2016 it is 3.36, which determines the last place in the ranking of Romania.

Bulgaria is just before Romania, with signs of deterioration of the indicators. The assessments it receives are: 2013-2014 - 4.18, for 2014-2015 - 3.91, for 2015-2016 - 4.01.

Figure 6. Dynamics of the port infrastructure quality index in Bulgaria and Romania



The density of existing port infrastructure in the cross-border area is high and free port capacity is available. Most of the ports, however, were built at the beginning of the last century, which has a negative impact on their technical condition. The main problems for the development of ports are related to the lack of sufficient investments for maintenance

[26] *Source: Eurostat*

and development of the port infrastructure in the previous years, outdated basic mechanical and transhipment facilities, poor condition of the quays.

The ports have sufficient capacity to handle bulk, bulk and bulk cargo, container and ro-ro units. At present, around 60% of the infrastructure capacity is used with the available transshipment equipment.

The trend towards port development is related to their concession and the liberalisation of port services, taking into account the need to improve the technical conditions of port infrastructures and waterways.

1.5.5. Sources for financing the constructure of waterway transport infrastructure in the cross-border region

The presentation of funding sources should be linked to the European Commission's strategic initiatives in the field of transport, relevant to the subject of this analysis, in implementation of which different financial instruments and funds have been created and applied.

EU Strategy for the Danube Region (EUSDR)

The EU Strategy for the Danube Region is the second EU macro-regional strategy adopted by the European Commission in 2010 and endorsed by the European Council in 2011.

The strategy brings together 13 countries along the Danube and covers an area where more than 112 million people live, or one fifth of the EU population. Nine of the participating countries are members of the EU: Austria, Bulgaria, Germany (Baden-Württemberg, Bavaria), Romania, Slovakia, Slovenia, Hungary, Croatia and the Czech Republic. Four of the participating countries are outside the EU: Bosnia and Herzegovina, Moldova, Serbia and Ukraine (Odessa, Ivano-Frankivsk, Chernivtsi and Zakarpattia Oblast).

The strategy focuses on four key points, and within each point priority areas are defined by specific cooperation activities:

Connecting the region:

- Improving mobility and transport links
- Promoting wider use of renewable energy
- Promoting cultural and tourism activities

Environment protection:

- Recovery and preservation of water quality
- Environmental risks management
- Conservation of biodiversity, landscapes and air and soil quality

Achieving well-being:

- Developing the knowledge society
- Supporting the competitiveness of enterprises
- Investing in People and Skills

Strenghtening the region:

- Stepping up institutional capacity and cooperation
- Work together to promote security and tackle organised and serious crime

The achieved results so far are the following:

- For the past years of EUSDR implementation, it is clear that the strategy is delivering results. Thanks to the strategy, several new major macro-regional projects (for example in the fields of shipping and climate change) have been launched or developed. By bringing together different stakeholders at different levels, the EUSDR contributed to a better culture of cooperation and helped to develop a multicultural dialogue. It also helped to increase coordination and develop synergies between policies and institutions at national level and supported enhanced thematic cooperation with non-EU countries as well as between existing international organisations in the region.

Specific examples:

- Coordinated risk management through projects such as SEERISK significantly reduces the risk of flood damage.
- Some bottlenecks for Danube ships have been removed and navigation security has been improved through projects such as **FAIRWAY and DARIF - Danube River Forum. EU Strategy for the Danube Region**
- The cultural dialogue and active participation of young people in civil society in the Danube region are promoted through projects such as "**Empowering Young People - Connecting Europe**".

The "Transport 2050" Strategy

The "Transport 2050" Strategy is a long-term plan to increase mobility and reduce emissions and dependence on oil. To achieve this, changes are needed in Europe's transport system.

Among the key targets by 2050 are: more cities not driven by conventional fuels; low carbon fuels in aviation; emissions from shipping to be reduced; the carriage of passengers and goods by means of long-distance interurban distances shall be carried out by rail and water transport; and as a result, transport emissions shall drop by 60%. The overall objective is to create a Single European Transport Area with more competition and a fully integrated transport network which links the different modes and allows for a radical change in transport patterns for passengers and cargo. For this purpose, specific initiatives have been identified for the next ten years, one of which is halving the use of conventional fuels in urban transport by 2030 and by 2050 their – their gradual total withdrawal from use in the cities.

The EU's European Regional Development Fund (2014-2020) aims at strengthening economic and social cohesion in the European Union, striking a balance between its regions by concentrating investment on several key priority areas: innovation and research, technologies, support for small and medium-sized enterprises and the low-carbon economy. ERDF actions aim to alleviate economic, environmental and social problems in urban areas with particular emphasis on sustainable urban development.

The EU Cohesion Fund aims to reduce economic and social disparities and promote sustainable development in Member States whose Gross National Income (GNI) per capita is below 90% of the EU average. It provides funding for activities in the areas of: trans-European transport networks on projects of European interest, infrastructure projects, environment - on projects related to energy or transport, provided they have a clear environmental benefit, such as energy efficiency, renewable energy use energy, developing rail transport, supporting intermodality, strengthening public transport, etc.

Investment Plan for Europe, Approved by the European Council on 18 December 2014

The plan is based on three complementary directions:

- *First* – mobilising in the next three years at least 315 billion EUR for additional investments to increase the impact of public funds and unlock private investment;
- *Second* - targeted initiatives to ensure that these additional investments meet the needs of the real economy.

The implementation of the first two strands at EU level will be achieved through the creation of a new European Strategic Investment Fund to provide risk support for long-term investment and to provide greater access to risk finance for SMEs.

Third – measures to ensure better regulatory predictability and to remove barriers to investment so that Europe becomes more attractive to investors.

"Europe 2020", Strategy for smart, sustainable and inclusive growth of the European Commission, 2010

"Europe 2020" is a European Union strategy for growth and jobs, which has been introduced to create conditions for smart - through more effective tools in education, research and innovation; sustainable - thanks to the decisive transition to a low-carbon economy and a competitive industry; and inclusive - with a strong focus on job creation and poverty reduction. It sets out five main targets to be achieved by the end of 2020 in the fields of employment, research and development, climate and energy, education, social

inclusion and poverty reduction. Progress towards the objectives of the Europe 2020 Strategy is promoted and monitored through the European Semester, the annual cycle of economic and budgetary policy coordination in the EU. In 2015, the Council adopted a new set of integrated guidelines - broad guidelines for the economic policies of the Member States and of the Union and guidelines for Member States' employment policies replacing the Integrated Guidelines 2010.

"Horizon 2020" was set up by Regulation (EU) No 1291/2013 of the European Parliament and of the Council and regulates the rules governing EU aid for research and innovation

Horizon 2020 is the Framework Programme for Research and Innovation (2014-2020). It aims at improving the European scientific and technological base, making better use of the economic and industrial potential of innovation, research and technology policies in line with the Europe 2020 strategy. To achieve this goal, measures are foreseen under three priorities: "Scientific excellence", "Industrial leadership" and "Societal challenges". The programme supports research and innovation through research subsidies, development and innovation grants, procurement and financial instruments.

The sources of funding during the previous programming period (2007 - 2013), as well as in this (2014-2020) and in line with the planned within the framework of the *"Integrated Transport Strategy of Bulgaria until 2030"* and the *"General Master Plan Transport of Romania"* includes funds from an EU grant, complementary funds from the state budget, municipal budgets, government loans and private sector funding.

Sources can be divided into the following groups:

• National funding (national funds);

• European funding (European funds);

• Private funding;

• National funding (local and central budgets);

• Public-private funding;

• Other sources of funding.

For better clarity, and in view of the above-mentioned provisions, sources of funding are addressed in the following groups:

- **National public funds:**
  - Local budget;
  - Central budget;
  - National funds.
- **External public funds:**
  - National operational programmes;
  - European funds;
  - European programmes.
- **Other funding instruments;**
- **Private financing.**

NATIONAL PUBLIC FUNDS

"STATE INVESTMENT LOANS" PROGRAMME OF THE REPUBLIC OF BULGARIA

The State Investment Loans Programme is the disposable resource, which is regulated by a corresponding decree on the annual implementation of the state budget of the Republic of Bulgaria and in compliance with the Public Finance Act.

State-guaranteed loans are loans based on financial contracts between the Government of the Republic of Bulgaria and the respective financing institution. State-owned investment loans can benefit state-owned beneficiaries and first-level budget spenders.

LOCAL BUDGETS AND STATE BUDGET

Options for financing Danube port infrastructure projects, river transport including improvement of TEN-T network connectivity are the state and local budgets of the partner countries - Bulgaria and Romania. For example, local but key infrastructure projects can be funded from the budgets of the relevant regions/counties, in line with local government responsibilities for transport development, mobility and connectivity.

The State budget enables, through the budgets of ministries and agencies, regional institutions and public authorities, within their competence and responsibility for the development of inland waterways and port infrastructure, mobility and connectivity to provide assistance for projects of regional, national and cross-border importance.

EXTERNAL PUBLIC FUNDS

OPERATIONAL PROGRAMME "TRANSPORT AND TRANSPORT INFRASTRUCTURE" 2014-2020

Operational Programme "Transport and Transport Infrastructure" 2014-2020 (OPTTI) is one of the ten operational programmes of the Republic of Bulgaria funded by the EU Cohesion and Structural Funds.

The overall objective of the OPTTI 2014-2020 is "Developing a sustainable transport system". In order to achieve the overall objective of the OPTTI 2014-2020, seven specific objectives have been formulated:

- "Attracting passenger and freight traffic by improving the quality of rail infrastructure on the Trans-European Transport Network";
- "Removal of "bottlenecks" on the Trans-European Transport Network";
- "Increased use of intermodal transport";
- "Increase in metro use";
- "Improving transport management by introducing innovative systems";
- "Improving the management of the rail network";
- "Ensure the necessary conditions for successful completion of OPT 2007-2013 and for implementation of OPTTI 2014-2020, increase of administrative capacity and public support".

The priority axes of the Programme are:

1. "Development of the railway infrastructure under the "main" Trans-European Transport Network";
2. "Development of road infrastructure under the "main" and "extended" Trans-European Transport Networks";
3. "Improving intermodality in passenger and cargo transport and developing

sustainable urban transport";

4. "Innovation in management and services - introduction of modernised infrastructure for traffic management, improving safety and security of transport";
5. Technical assistance.

THE CROSS-BORDER COOPERATION PROGRAMME INTERREG V-A ROMANIA-BULGARIA 2014-2020

Interreg V-A Romania-Bulgaria 2014-2020 is a programme for cross-border cooperation, co-financed by the European Union with funds from the European Regional Development Fund.

The Strategic Objective of the Programme for the period focuses on the thematic areas of the Europe 2020 Strategy related to climate change, risk prevention and management, conservation and protection of the environment, promotion of resource efficiency, sustainable transport, promotion of employment and mobility of work strengthening institutional capacity by promoting cooperation between citizens and institutions.

The regions, which it covers, are 7 counties in Romania (Constanța, Dolj, Olt, Teleorman, Giurgiu, Calarasi, Mehedinti) and 8 regions in Bulgaria (Vidin, Vratsa, Montana, Pleven, Veliko Tarnovo, Ruse, Silistra, Dobrich).

The projects are funded as follows: 85% from the ERDF, 13% national co-financing from the two partner countries (Bulgaria and Romania) and 2% own contribution.

The selected thematic objectives are formulated in five priority axes: "A Well-Connected Region", "Green Region", "Safe Region", "Qualified and Inclusive Region" and "Efficient Region" that respond to the needs and challenges of the cross-border region.

Beneficiaries under the Programme are national, regional and local authorities as well as public organisations, which is a prerequisite for improving the knowledge and learning of good practices by Bulgarian and Romanian organisations in order to improve their regional and local development policies.

Support in the area of improving the region's connectivity to the TEN-T network can mainly be achieved to establish joint mechanisms addressing cross-border transport issues; facilitating the connection of secondary/tertiary nodes with TEN-T infrastructure; research, strategies and action plans to improve shipping safety on the Danube and the Black Sea;

renovation or improvement of inland waterways, risk management actions and the development and implementation of measures to protect against natural disasters, early warning and response in emergencies; creating or expanding cross-border mechanisms (agreements, networks, regulations, surveys, policies, strategies, information exchange tools) to enhance cooperation capacity.

"DANUBE" 2014-2020 TRANSNATIONAL COOPERATION PROGRAMME

The "Danube" 2014-2020 Transnational Cooperation Programme is a financial instrument to promote and initiate project ideas related to overcome the common challenges and needs in specific areas to achieve real benefits for people and to build effective links between authorities and organisations in the Danube Region.

The regions covered by the Programme are in the territory of 9 EU Member States: Austria, Bulgaria, the Czech Republic, Germany (Bavaria and Baden-Württemberg), Croatia, Hungary, Romania, Slovenia and Slovakia and 3 candidate countries: and Herzegovina, Serbia and Montenegro. Moldova and four regions of Ukraine (Zakarpattia, Ivano-Frankivsk, Odessa and Chernivtsi) may also participate in the Programme with financing from the European Neighbourhood Instrument.

Beneficiaries under the Programme may be national, regional and local authorities as well as non-governmental and private organisations.

Danube Transnational Programme has four priority axes:

Innovative and socially responsible Danube Region

In line with the EU flagship initiative on innovation and the implementation of the Europe 2020 Strategy in the countries of the Danube Region, the Programme pays special attention to a number of innovation topics that are of major importance in the field of cooperation such as eco-innovation, of knowledge, cluster policies, social innovation and qualified entrepreneurship, including aspects of technological and non-technological innovation. The social dimension of innovation (social innovation, educational aspects and entrepreneurial skills) is of great importance. Research and innovation are interlinked with other thematic objectives that are addressed in the Programme.

Environment and culture responsible Danube Region

Through this priority axis, the Danube Transnational Programme 2014-2020 supports joint and integrated approaches to preserve and manage the diversity of natural and cultural values in the Danube region as a basis for sustainable development and growth strategies. The programme provides for investments in the creation and/or maintenance of ecological corridors with transnational significance in the Danube Region. This intervention is directly related to water management and control of environmental risk factors, such as flood risks. In addition, disaster prevention and management (risk management) is considered related to risks caused by non-functional ecosystems and human-induced changes in climatic conditions.

Better connected Danube region

Within this priority axis, the Programme addresses common challenges related to environmentally friendly, low carbon and safe transport systems, including inland waterways and ports and multimodal connections, in order to contribute to sustainable regional and local mobility, modal integration and intelligent transport. The programme also aims to support regional connectivity and balanced accessibility of urban and rural areas. Better management of regional mobility and better border permeability at regional level should ensure that urban and rural areas make use of the opportunities created by the major transport networks developed at European level. On the other hand, energy is a typical problem whereby the transnational approach is essential to ensuring security of supply, market integration and more effective regional planning, and to jointly identify the most critical infrastructure developments. Regional energy planning and coordination need to be improved in the Danube region within the wider context of EU energy policy development to ensure the security and efficiency of energy supply. Another aspect is the development of intelligent distribution systems in which the programme area is still in the early stages. The programme aims to contribute within its specific scope to the development of smart energy distribution systems in order to increase the efficiency of the regions' significant investments in renewable energy, energy efficiency and smart grids.

Well-governed Danube region

Institutional cooperation and capacity is a key objective and a vital element of the Program. Institutional capacity is not only a technical task for training civil servants, but concerns how public authorities interact and provide services to businesses and citizens. “Good governance” is the foundation and ultimate goal of building institutional capacity. Good governance builds trust and social capital. Countries with a high level of social capital tend to achieve better economic performance.

The need for purposeful efforts in the area of good governance has been identified after an analysis to develop the capacity of public authorities and other stakeholders from the public to cope more effectively with the challenges that are of the greatest importance to the region. Establishing institutional cooperation under the Programme should lead to an improvement in the legal and political framework, the development of strategies and action plans, the development of joint capacities and the coordinated provision of services in areas of major societal challenges such as labour market policies, education systems and policies, demographic change and migration challenges, inclusion of vulnerable and marginalised groups, participatory planning process and civil society involvement, cooperation between cities and rural areas and partnership, cooperation in the field of safety, justice and security.

“INTERREG EUROPE” 2014 – 2020 INTERREGIONAL COOPERATION PROGRAMME

The “Interreg Europe” 2014 – 2020 Interregional Cooperation Programme is a tool for implementing the European Union's Cohesion Policy - a strategy for a smart, sustainable and inclusive economy creating high levels of employment, productivity and social cohesion.

The overall objective of the Programme is to improve the implementation of regional development policies and programs, in particular the programmes under the “Investment for growth and jobs” objective and, where appropriate, the European Territorial Cooperation Objective programmes by promoting the exchange of experience and the absorption of policies among participants of regional importance.

INTERREG EUROPE focuses on the entire territory of the European Union, Norway and Switzerland.

In the programming period 2014-2020, the Programme is working on four topics related to regional development: “Research, technological development and innovation”, “Competitiveness of small and medium-sized enterprises”, “Low carbon economy” and ‘Environment and resource efficiency”.

Beneficiaries may be organisations from the 28 EU member states, Norway and Switzerland if they are national, regional or local public authorities, other public law bodies (e.g. universities, regional development agencies, business support organisations, etc.), NGOs.

The specificity of this Programme is that an educational policy platform has been created. The aim is for the entire community of regional politicians to have access and benefit to the general knowledge in the field of the 4 themes of the Programme. The platform creates a space for continuing learning, knowledge transfer, improving Europe's regional policies without engaging in a specific project. It also helps networking and expanding opportunities to set up and manage partner networks, providing expert support.

EUROPEAN STRUCTURAL AND INVESTMENT (ESI) FUNDS 2014-2020

This includes the Cohesion Fund and the European Regional Development Fund. Due to the high level of knowledge of these two funds, here is the most general information about the two funds.

The Cohesion Fund **(CF)** is aimed at Member States whose Gross National Income (GNI) per inhabitant is less than 90 % of the EU average. It aims to reduce economic and social disparities and to promote sustainable development. The Fund finances:

- Infrastructure sites from the transport and energy network;
- Environmental protection activities;
- Low carbon economy.

The European Regional Development Fund (ERDF) seeks to strengthen economic and social cohesion in the EU by correcting inequalities between the regions of the Union. The Fund's financial support is to support the following areas:

- Research and development;
- Small and medium enterprises;
- Low carbon economy;
- Transport and energy infrastructure projects.

The ERDF also has a significant contribution to cross-border, transnational and interregional cooperation within the European territorial cooperation objective. Partnerships with third countries neighbouring the EU are also admissible through programmes under the European Neighbourhood Instrument and Instrument for Pre-Accession Assistance.

EUROPEAN STRATEGIC INVESTMENT FUND

The European Investment Fund (EIF) is an essential element of the investment plan for Europe, designed to stimulate economic growth and competitiveness in the European Union in the long term. EFSF envisages the use of a common fund with the EIB, using innovative financial instruments, including bonds and various forms of risk financing instruments. EFSI support can be combined with EU grants through the Connecting Europe Facility (CEF) and Horizon 2020, as well as from ESF funds.

The objective of the fund is to use public funding, including EU budget funding, to mobilise private investment for a wide range of projects in the EU. Projects cover areas such as infrastructure, research and innovation, education, health, information and communication technologies and others.

The Fund is a separate and transparent entity and a separate account managed by the European Investment Bank (EIB). It was created in July 2015 with a special regulation.

Since September 2016, the Council has been working on a new proposal for the European Strategic Investment Fund, which aims to amend the EFSI regulation of 2015.

The fund aims to encourage the participation of private investors in a wide range of new investment projects. To achieve this, he takes part of the project risk through the first loss liability. Based on the existing 16 billion EUR guarantees from the EU budget and 5 billion EUR from the EIB, the aim is to achieve a multiplier effect of 1:15.

At present, the projects cover transport, energy and broadband infrastructure, education, health, research and risk finance for SMEs. EFSI is geared towards socially and economically viable projects without pre-existing sectoral or regional distribution.

CONNECTING EUROPE FACILITY

The Connecting Europe Facility (CEF) was established by Regulation (EU) No 1316/2013 of the European Parliament and of the Council of 11 December 2013 and covers the transport, telecommunications and energy sectors.

The Connecting Europe Facility (CEF) is an essential EU funding instrument for promoting growth, employment and competitiveness through targeted infrastructure investment at European level.

The CEF supports the development of highly efficient, sustainable and efficiently linked trans-European networks in the fields of transport, energy and digital services.

Investments from the CEF fill the missing links in the European energy, transport and digital "backbone".

MSE is beneficial for people in all Member States as it makes travel easier and more comfortable, improves Europe's energy security while allowing for wider use of renewable energy sources and facilitates cross-border interaction between public administrations, businesses and citizens.

In addition to the grants, CEF offers financial support to projects through innovative financial instruments such as project bonds and bonds. These instruments create a significant leverage in the use of the EU budget and act as a catalyst for attracting additional funding from the private sector and other public sector actors.

CEF has three sectors:

- CEF Energy
- CEF Telecommunications and ICT
- CEF Transport

One of the key priorities of the CEF is to enable and strengthen synergy between the three sectors. Inter-sectoral actions can provide an opportunity to optimise costs or results by pooling financial, technical or human resources, thus increasing the effectiveness of EU funding.

CEF Transport

The Connecting Europe Facility for Transport is a tool to finance the implementation of European transport infrastructure policy. It aims to support investment in the construction of a new transport infrastructure in Europe or in the rehabilitation and modernisation of the existing.

The policy objectives foresee:

- completion by 2030 of the core network, structured around nine multimodal corridors of the core network.
- completing the entire network by 2050 to facilitate access to all European regions.

CEF Transport focuses on cross-border projects and projects aimed at removing bottlenecks or overcoming missing links across the core network and the entire network, as well as horizontal priorities such as traffic management systems.

CEF Transport also supports innovation in the transport system to improve the use of infrastructure, reduce the impact of transport on the environment, increase energy efficiency and increase safety. The total budget for CEF Transport is 24,05 billion for the 2014-2020 period

TEN-T

The TEN-T programme was set up by the European Commission to support the construction and modernisation of transport infrastructure across the European Union.

The TEN-T program provides financial support for the realisation of important transport infrastructure projects, in line with the objective of enhancing European competitiveness, job creation and cohesion.

The projects represent all modes of transport - air, rail, road and sea/inland water - plus logistics and intelligent transport systems and include all EU Member States.

Participation is based on open competitions and offers must be submitted in accordance with the procedure defined in the competition. Eligible participants are legal entities from the EU Member States as well as from the associated countries - Norway and Iceland.

Forms of financial assistance

- *Grants*

The grants are aimed at those projects that receive insufficient funding from the private sector. Grants are between 50% and 100% of the eligible costs.

The value of the equipment and infrastructure that the beneficiary considers as capital expenditure can be considered as eligible expenditure to its full extent.

Grants can not have the purpose or effect of generating profits in the course of the activity (the 'no-profit principle').

- *Public procurements:*

Public procurements can be awarded independently by the European Commission or jointly with the Member States.

- *Financial instruments:*

The purpose of financial instruments is to enhance the multiplier effect of European Union spending by attracting additional resources from private investors.

The financial instruments support projects of common interest which have a clear European added value and facilitate private sector involvement in the long-term financing of such projects.

Equity instruments (e.g. venture capital focusing funds) and debt instruments (loans and/or guarantees backed by risk-sharing instruments, including project bonds) can be used.

HORIZON 2020

Horizon 2020 is an EU Framework Programme for Research and Innovation. It is established by Regulation (EU) No 1291/2013 of the European Parliament and of the Council and regulates the rules governing EU aid for research and innovation.

Horizon 2020 aims at raising Europe's scientific and technological base, making better use of the economic and industrial potential of innovation, research and technology policies in line with the Europe 2020 strategy. To achieve this goal, measures are foreseen under three priorities: “Scientific excellence”, “Industrial leadership” and “Societal challenges”. The program supports research and innovation through subsidies, awards, public procurement and financial instruments.

OTHER FINANCING INSTRUMENTS

WORLD BANK GROUP

The International Bank for Reconstruction and Development (IBRD) was established in 1945 following the agreement reached at the Bretton Woods Conference of 1944. The IBRD is one of the five institutions that comprise the World Bank Group, the other being: the International Finance Corporation (IFC) established in 1956, the International Development Association (MAD), established in 1960, the Multilateral Investment Guarantee Agency (AMGI), established in 1988, and the International Centre for the Settlement of Investment Disputes (ICSIS) , created IN 1966.

The main forms of support and funding by individual organisations within the World Bank Group are subject to common objectives and priorities: poverty reduction, economic and social development and improved living conditions of the population. This also defines the broad sectoral scope and specificity of the World Bank's funding as well as its role in the international financial community as a group of organisations that cooperate in all sectors of the economy - from infrastructure to the social sphere. When providing financial support, they are guided, in addition to purely commercial and economic criteria for efficiency and return, and criteria linked to stimulating positive reforms and sustainable development. For this reason, in addition to traditional areas, World Bank Group organisations are a major source of funding for both low-cost and non-renewable activities of social value - social

services, healthcare, education, human capital development, environmental protection and others.

IBRD is the main organisation of the World Bank Group and, given the good practice and sound management over the years, has a credit rating of a first-rate borrower, enabling it to finance its operations under the most favorable conditions of the international financial markets. This allows the IBRD to provide relatively subsidiary and more favorable conditions for lending to its member states. The Bank only provides funding to governments and government entities or a state guarantee from the Member State.

The underlying financial conditions under which IBRD credits its borrowers currently include loans with a weighted average maturity of up to 18 years with a total repayment term of up to 30 years, an initial charge and floating interest rates with the option of fixing their individual components or applying instruments currency and other risk management.

IBRD Bulgaria joined with subscribed equity capital of 521.5 million USD (about 0.3% of total subscribed capital). The functions of manager in the World Bank Group for Bulgaria organisations are carried out by the Minister of Finance and the Deputy Governor - Deputy Governor of the BNB.

Support for countries such as Bulgaria and Romania takes place mainly in the form of structural and investment funding provided at state level or under a state guarantee. In addition to the lending, the IBRD provides grants from its own or managed funds and provides concomitant analytical and advisory assistance in separate key areas.

The IFC and AMGI activities in the country from its membership are of varying intensity, aiming at supporting private greenfield investments (including equity participation), investment lending for individual projects in the private sector, and granting of guarantees for foreign investment.

The scope of the investment and the amount of funds is determined by signing a Partnership Framework addressing specific areas in line with identified needs of the partner country. The last funding period is 2017-2022.

EUROPEAN INVESTMENT BANK

The EIB provides funding for projects that help to achieve the EU's objectives within and outside the Union. The EU countries jointly own the EIB. The bank's purpose is:

- to increase Europe's potential in terms of jobs and employment;
- to support actions to mitigate climate change;
- to support EU policies beyond its borders.

The Bank borrows funds on the capital markets and lends them on favorable terms to projects supporting the EU's objectives. About 90% of credits are provided in EU countries. No funds are provided from the EU budget.

The EIB provides three main types of products and services:

- Lending - about 90% of the bank's total financial commitments. The Bank grants loans to customers of any size to support growth and employment, often helping to attract other investors;
- Mixed funding - allows customers to combine EIB financing with additional investment;
- Consultancy and technical assistance - to maximise profitability;
- The EIB directly allocates loans amounting to more than 25 million euro. When it comes to smaller loans, the bank opens credit lines for financial institutions, which then provide these funds in the form of loans.

It takes decisions on borrowing and lending based on the merits of each project and the opportunities offered by financial markets. In the EU, the bank has specific lending priorities. Outside the EU, it supports the Union's development and cooperation policies.

As an independent body, the bank takes autonomous decisions to make and deliver credits. It cooperates with other EU institutions, in particular the European Commission, the European Parliament and the EU Council.

The EIB finances projects in the following priority sectors.

Innovation and skills

Innovation and skills are key elements in delivering sustainable growth and creating high-value jobs. They play an important role in stimulating long-term competitiveness. For the EIB, this is a top priority and therefore they are a key partner for projects that develop innovation and skills for a developing economy.

Infrastructure

Infrastructure is a major pillar connecting domestic markets and economies. Infrastructure projects play an important role for economic growth, sustainability and job creation as well as competitiveness.

Accordingly, the EIB as an EU bank places the provision of investment in infrastructure as a top priority. At the same time, new funding models require funding for reasonable and efficient spending. The EIB provides financial support for infrastructure initiatives aimed at improving energy efficiency, transport, water and sustainable urban infrastructure.

Climate change and the environment

The EIB is also committed to adapting to climate change and mitigating the effects by more than 25% of the total financial resource. For investments in developing countries, this share is projected to increase to 35% by 2020.

At the same time, the EIB provides support to promote environmental objectives in both developed and developing countries. EIB financing supports sustainable projects in over 160 countries and acts as a catalyst for the mobilisation of private funds.

EUROPEAN BANK FOR RECOVERY AND DEVELOPMENT

The European Bank for Reconstruction and Development (EBRD) was established in 1991 with the aim of contributing to economic progress and facilitating the transition to a market-oriented economy in the countries of Central and Eastern Europe that have accepted to observe the principles of pluralist democracy. Its shareholders are 63 countries and 2 inter-state institutions - the European Union and the European Investment Bank. Currently, the EBRD's share capital amounts to 21 billion EUR, and by December 31, 2021, subscription is expected to be subscribed by the shareholders at 9 billion EUR in call-to-

demand shares. The Republic of Bulgaria participates in the EBRD's capital with 165.98 million EUR representing 16,598 shares, each with a nominal value of 10,000 EUR.

Through its activities, the EBRD supports the building of market economies in 29 Central European countries to Central Asia, becoming the largest unilateral investor.

Through its activity and investment policy, the EBRD supports and supports the implementation of structural and sectoral reforms in the countries of activity, the development of competition, the stimulation of privatisation and private initiative and the development of the infrastructure needed to support the private sector. EBRD mainly invests in private enterprises, usually in common with other trading partners. 87% of the EBRD projects are in the private sector. In the public sector, the EBRD provides funding for major infrastructure projects. The Bank also works with public sector enterprises to support privatisation, restructuring state-owned enterprises, and improving municipal services.

The EBRD has a wide range of financial instruments tailored to specific projects. The main instruments are loans, investments and guarantees.

Loans are provided in any currency widely traded on major world financial markets, or sometimes in local currency, of the borrower with fixed or floating interest rates under particularly favorable terms. The Bank's high credit rating (Standard & Poor's AAA by Moody's and AAA by Fitch) enables it to provide loans that best meet the requirements of the international markets by providing the most competitive its customers. The EBRD provides loans at a minimum of 5 million EUR with a repayment period of between 1 and 15 years, with a grace period when necessary. Typically, the Bank finances up to 35% of the total project cost.

PRIVATE FUNDING

Private funds are funds from private banks, funds, initiatives, projects and funds from private companies and non-governmental organisations.

1.5.6. Funding of port infrastructure through CEF

CEF is one of the specialised tools for financing the construction and development of port infrastructure in the EU countries. That's why its use deserves special attention. This section examines the participation and success of the projects presented by the port authorities and

the link between the requested and the allocated funding. The data used for the analysis are of the Executive Agency for Innovation and Networks of the European Commission (INEA) and supplemented with other public data.

The results of twelve invitations from 2014 to 2017 are included in the analysis. They include all Multiannual Invitations, Announcements, General and Cohesion Calls. Given the limitations of the available data, the analysis focuses on the proposals presented by the port authorities as lead candidates.

In addition to leading coordinators, the port authorities have participated in additional proposals and have benefited from funding from projects promoted by third parties (e.g. maritime administrations, private companies, etc.).

Financing large-scale infrastructure projects clearly has a positive effect on the efficiency, safety, security and environmental friendliness of transport, which contributes to competitiveness and the development of trade both within and outside the EU.

Thus, EU funding for such projects is clear and in the interest of European ports. However, the focus of this analysis is on the projects presented by the Port Authorities as the coordinating applicant as they are the organisation responsible for most of the investments in the port infrastructure.

Table 6. Results of the participation of port management authorities as candidates under the CEF calls for 2014-2017

Calls under CEF for 2014-2017	Maximum budget (€)	Proposals by PMAs	Financed proposals	Allocated funds (€)	% of financing
Call 2014	11.930.000.000	95	30	524.513.401	4%
Call 2015	7.560.000.000	40	14	187.925.504	2%
Call 2016	1.939.500.000	26	12	64.847.407	3%
Call 2017	1.000.000.000	7	6	83.216.772	8%
Total	**22.429.500.000**	**168**	**62**	**860.503.084**	4%

Source: Based on INEA data and publicly available information.

From 2014 to 2017, around one third of port projects submitted by Port Authority (MAs) have been able to raise funds from the CEF. A total of 168 proposals were submitted by the port authorities. These proposals concern one of the following modes of transport: ports, sea ports, multimodal, rail, inland waterways, roads. 62 of these proposals received funding.

More than half of the proposals submitted by the port authorities (87 proposals) received a negative assessment of at least one of the four external assessment criteria (relevance, maturity, impact, quality).

Only 19 proposals (11%) did not receive funding because of budget constraints, although they were positively evaluated by external experts and by the Commission. Port Authority authorities have applied for € 2.5 billion between 2014 and 2017 and have received € 860 million, representing 35%. This represents 4% of the available funding under the CEF for the period.

Results by countries

The assessment of the allocation of EU funds allocated to the port authorities by country is given below. This analysis has two limitations. Firstly, it only takes into account the 62 successful proposals submitted by the port authorities and thus excludes funding requested by the ports through projects submitted by other partners. Secondly, one third of successful proposals (22 out of 62) are beneficiaries - port authorities, shipping lines, terminal operators or others. There is no public data on the separation of funding between partners. For the analysis, the funding is distributed equally among the participating Member States. This information is obtained in the table below.

Table 7. Distribution of the funds, allocated to port infrastructure management authorities by countries, in euro

Countries	2014	2015	2016	2017	Total	Share
France	155.761.026	539.880	0	0	156.300.906	18%
Poland	13.238.184	118.713.559	477.870	19.914.950	152.344.563	18%
Croatia	30.222.600	32.841.238	35.205.931	0	98.269.768	11%
Spain	72.871.645	7.424.352	647.500	2.169.444	83.112.941	10%
Italy	18.956.743	5.380.450	1.415.650	39.546.444	65.299.287	8%
Netherlands	59.892.118	0	321.065	0	60.213.183	7%
UK	44.368.443	0	0	0	44.368.443	5%
Ireland	38.518.056	0	0	4.477.600	42.995.656	5%
Sweden	22.412.874	0	8.699.685	10.388.333	41.500.893	4%
Finland	17.925.000	0	8.742.500	6.720.000	33.387.500	2%
Slovenia	13.655.743	1.743.533	0	0	15.399.276	2%
Estonia	14.650.000	0	0	0	14.650.000	1%
Germany	8.692.050	0	2.410.685	0	11.102.735	1%
Romania	0	10.791.706	0	0	10.791.706	1%
Greece	0	5.308.783	1.415.650	0	6.724.433	1%
Portugal	4.123.485	2.322.672	0	0	6.446.157	1%
Lithuania	5.097.621	0	0	0	5.097.621	0,4%
Denmark	1.452.070	0	1.890.000	0	3.342.070	0,4%
Cyprus	2.675.743	0	441.920	0	3.117.663	0,3%
Bulgaria	0	2.859.330	0	0	2.859.330	0,3%
Malta	0	0	2.857.887	0	2.857.887	0,3%
Belgium	0	0	321.065	0	321.065	0,04%
Latvia	0	0	0	0	0	0
TOTAL	**524.515.415**	**187.927.519**	**64.849.423**	**83.218.789**	**860.503.083**	

Source: Analysis, based on the INEA data and publicly available information.

The port authorities in Bulgaria and Romania have a higher co-financing rate (85%) from the CF in the CEF calls.

It can be noted that the allocation of country grants is quite uneven and some ports have received a large share of funding, while in other large ports, the funding allocated to port management is very limited. This may be partly related to the differences in port management, as some port authorities are responsible for more investment in port infrastructure than others - and thus are more likely to apply for and receive gratuitous funds.

Table 8. Number of successful projects by countries

Страна	2014	2015	2016	2017	Общо проекти
Italy	4	2	1	4	11
Spain	3	4	1	2	10
France	9	1	0	0	10
Sweden	5	0	3	2	10
Poland	3	3	1	2	9
Croatia	1	3	3	0	7
Ireland	4	0	0	2	6
Finland	2	0	2	2	6
Portugal	3	1	0	0	4
UK	3	0	0	0	3
Slovenia	2	1	0	0	3
Greece	0	2	1	0	3
Cyprus	1	0	1	0	2
Denmark	1	0	1	0	2
Germany	1	0	1	0	2
Estonia	1	0	0	0	1
Lithuania	1	0	0	0	1
Romania	0	1	0	0	1
Bulgaria	0	1	0	0	1
Malta	0	0	1	0	1

Страна	2014	2015	2016	2017	Общо проекти
Netherlands	1	0	1	0	2
Belgium	0	0	1	0	1
Latvia	0	0	0	0	0

Source: Analysis of the INEA data and publicly available information.

From the analysis of the results of previous invitations, the following conclusions can be drawn. Firstly, port authorities, which, although having significant investment needs, receive only 4% of the funding available for the CEF between 2014 and 2017. Port authorities apply for funding primarily for maritime transport projects, but also seek funding for rail, road, inland waterways and multimodal projects.

Secondly, the distribution of grants to port authorities is uneven across time and between Member States. 61% of the funding provided to the port authorities was made available in 2014, reaching 83% in 2015. Funding in 2016 and 2017 represents only 17% of the funding allocated to port authorities between 2014 and 2017. Six countries concentrate 72% of the funding allocated to the port authorities between 2014 and 2017. While in some cases the funding is distributed among a number of projects, in other cases several large projects receive a large share of the total funding of the port authorities.

Bulgaria and Romania have a modest participation in the use of the CEF capabilities. During the analysed period, only one project was implemented in both countries. Its value in Romania is 10.8 million EUR, and in Bulgaria - 2.9 million EUR, which is an insignificant part of the total absorbed budget of the Facility.

2. State of the navigation system in the Romania-Bulgaria cross-border region

Navigation along the Danube River is to be understood as a system of inseparably interconnected individual elements. These elements include Danube waters, vessels and their cargo (types of goods), ports as centres linking inland navigation to road and rail transport modes, River Information Services (RIS) along with the legal and policy framework. The potential of shipping on the Danube can only be fully realised when there is achieved interaction of all these elements.

2.1. Infrastructure for provision of river information services in Bulgaria

River Information Systems [27]

River Information Systems (RIS) are navigation systems serving ships and institutions responsible for traffic management, waterway maintenance, shipping safety, environmental protection, and more. Traditional communication between ships and the various coastal services serving shipping has been done through radio, telephony, visual observation and other methods. RIS is an environment in which modern electronic navigation can be implemented, which is a practice in maritime transport. In view of the communications applications under which the River Information Services system functions, it can be determined that they are essential for ship crews as well as for transport and port operators, where the importance is reduces the amount of variable costs and improves the processing and transmission capacity of ports.

The BULRIS system[28]

Traffic monitoring systems that integrate into BULRIS provide real-time information both to coastal services and the necessary data for safe sailing ships: AIS data, radar picture and video surveillance with thermo picture option.

- Upper Fairway Data (Inland Waterway) - Inland Electronic Navigation Cards, Internet Ship Ship Notifications, On-Route Radar Systems, Sailing Planning;
- Information on current legislation - a mode of navigation on the territory of each Party;
- Hazards on the waterway/disaster signals;
- Shipping and logistics information on arrival date, type of cargo, free ship volumes;

[27] http://www.bulris.bg/project-bulris/system-bulris,

[28] http://www.bulris.bg/project-bulris/system-bulris,

- Traffic Control - ensures safety and security of shipping and delivery. Provides Electronic Ship Reports, Vessel Monitoring and Tracking, Automatic Identification (AIS).

The Regulation on the provision of river information services on inland waterways of the Republic of Bulgaria (as amended in 2014) transposes into Bulgarian legislation the requirements of Directive 2005/44/EC of the European Parliament and of the Council of 7 September 2005 on the harmonisation of the River Information Services (RIS) on inland waterways of the Community.

Directive 2005/44/EC lays down the obligation to implement four key RIS key technologies:

- Visualisation of electronic charts – Inland ECDIS;
- Electronic ship reporting – ERI;
- Notices to Skippers – NtS;
- Vessel Tracking and Tracing system – VTT;
- Special elements of the system are Hull Data Base and RIS Index.

In addition, the Directive states that Member States must meet a set of minimum data requirements, all data on inland navigation and inland navigation planning. These data shall be provided in accessible electronic format and shall contain at least the following:

- Fairway axis with kilometre indication;
- Limits for ships or gears in terms of length, width, displacement and height;
- Working time of restraining structures, in particular locks and bridges;
- Location of ports and transhipment sites;
- Reference data for water level sensors related to navigation.

Elements of the system

All elements of BULRIS are fully compatible with analogous systems in other Danube countries in implementation of Directive 2005/44 / EC.

*Notices to Skippers - NtS*NtS

Notices to Skippers is part of the BULRIS system. The Notifices are key RIS technology that is standardised and is available in 12 different languages. The messages provided are related to notifications from responsible institutions regarding restrictions, limitations and river features or section of the river, fairway maintenance, traffic information, hydrographic information, weather conditions, water level, ice-water. Automatically gathering information from pegs and weather stations saves time, human labour and mistakes.

The "Notices to Skippers" subsystem is related to similar systems in other countries and provides search and display of messages for the relevant parts of the Danube River and other River Channels. The address of the subsystem is: http://nts.bulris.bg

Electronic reporting (ERI)

Another key technology for RIS services is Electronic Reporting - ERI. It provides strategic traffic information, traffic management, disaster prevention assistance, statistics, waterway and port fees, logistics.

BULRIS supports:

- Web based application for introducing Electronic reports for registered users;
- Interfaces to external applications for ERI;

Electronic reports can be completed and sent by both the captain and an agent.

The provisions of the Ordinance on Provision of River Information Services on Inland Waterways of the Republic of Bulgaria establish compliance with the requirements of Implementing Regulation (EU) No 689/2012 and Implementing Regulation (EU) No 909/2013. Masters and crew must, before entering the harbor of a port, and in accordance with the procedure laid down in Art. 14, para 1 and 2, to inform the Maritime Administration Executive Agency of their intentions through an electronic report (ERI) or by radio-telephone connection of the declared information and navigation channel communicating the name, the flag of the ship, the number vessels, the size and maximum

drafting of the composition, the speed and direction of voyage and the presence of dangerous goods - by type, class and quantity.

The ERI system is available via the Internet at the following address: http://eri.bulris.bg and contains the following services and work standards:

- International data exchange across borders;
- Web services R2D2;
- ERINOT XML based ERINOT XSD, version 1.2g.

Vessel Tracking and Tracing system (VTT)

In relation to the requirements of Directive 2005/44/EC on the Deployment and Application of Harmonised River Information Services and Systems, the visualisation of ship traffic is implemented through the Internet-based software http://vtt.bulris.bg, which provides the following information and services for shipping:

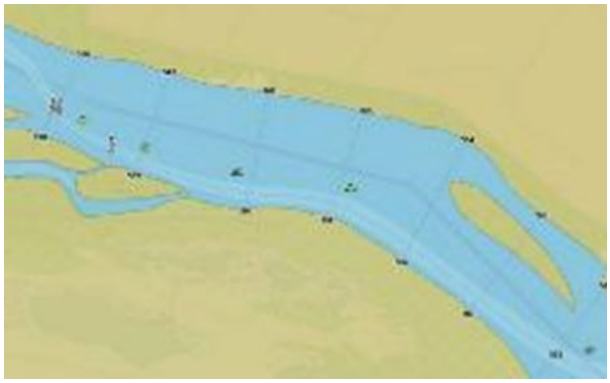
- Current fairway data (waterway);
- Location of river and shore signs;
- Hazards on the waterway;
- Distress alerts;
- Transport and logistics information.

The web graphical user interface is the user interface of the AIS subsystem. The AIS Web server is designed to supply the user with the data available in the AIS subsystem. The cards used on the AIS Web server meet the S-57 Inland ENC standard and can be updated.

The programme offers a combination of data from multiple sensors and overlays them and depicts them on S-57 standard electronic cards. Sources of information are radars, AIS base stations, CCTV cameras, FM radio stations).

Diagram 8. Vessel Tracking and Tracing system

VTT km 487 - 499



VTT km 562-568

National Reference Data Management System (NRDMS)[29]

The RIS index of each country describes the objects on the waterways, such as locks, bridges, ship stands, etc.

Reference data is required to create notices to skippers (NtS), in accordance with the Standard Notices to Skippers Standard Edition 2.0. The data is integrated with ERDMS, providing functions for creating new, changing existing data, obtaining changed data in accordance with the procedures described in the document "European RIS Data Management Services" under the PLATINA project.

For Bulgaria, the RIS index is issued by the EA "Exploration and Maintenance of the Danube River" as an obligation under the Ordinance on Provision of River Information Services on the Inland Waterways of the Republic of Bulgaria and is publicly available to all.

The BULRIS system provides an up-to-date national RIS index for the Bulgarian part of the Danube River. Users can download it in Excel format.

The National RIS Portal is integrated with the National Reference Data Management System (NRDMS), from which the current version of the RIS index is produced. NRDMS is available at http://nrdms.bulris.bg.

[29] http://www.bulris.bg/river-information-services/national-reference-data-management-system-(nrdms), *accessed on 07.07.2017*

National Electronic Document Processing System (Single Window)[30]

SE "Port Infrastructure" put into operation from March 15, 2017 the electronic document processing system on the arrival and departure of ships in/from our river ports.

The "Single Window" or "One-Stop Shop" system allows standardised information and documents to be submitted electronically and not in paper form to a single entry point. The system is in accordance with Directive 2010/65/EU of the European Parliament and of the Council of 20 October 2010 on reporting of ships arriving and departing from ports of the Member States of Decree No 242 of 04.08.2014 amending and supplement to the Ordinance on Provision of River Information Services on Inland Waterways of the Republic of Bulgaria, adopted by Decree No. 329 of the Council of Ministers of 2007 (State Gazette No. 3 of 2008), Art. 9, para. 1 and the Ordinance.

2.2. Establishment of river information system in Romania

In implementation of the country's commitments under Directive 2005/44 / EC of the European Parliament and of the Council of 7 September 2005 on the Harmonisation of River Information Services (RIS) on the Inland Waterways of the Community, a project to build a monitoring system traffic RoRIS[31] is in the process of implemention.

The River Information System in Romania (RoRIS) is a complex system for monitoring and managing the traffic of ships in the Danube River sector in Romania. The system complies with the standards of Directive 2005/44/EC, which entered into force on 20 October 2005.

The general objectives of the Romanian RIS of the Danube are:

- improving the safety of river navigation and the effectiveness of internal traffic;
- minimising marine incidents, reduce pollutant emissions and environmental hazards;
- maximising the effective capacity of waterways and the capacity of the vessels to be transported;
- ensuring effective use of ports and terminals;

[30] http://www.bulris.bg/river-information-services/sistema-za-elektronna-obrabotka-na-dokumenti-na-reka-(single-window), *accessed on 07.07.2017*

[31] http://www.roris.ro/portal/prezentare-ris/sistem-ris.aspx

- achieving maximum security for passengers, crew, ships and freight.

The system is organised in accordance with the organisational structure of the Romanian Naval Service. Her headquarters are in Constanta. At the regional level, the Office has offices in Drobeta Turnu Severin, Giurgiu, Galați, Tulcea and Sulina.

The aim of the project is to develop an information system for the whole length of the Danube, which should fully comply with the European Directive 2005/44/EC (RIS Directive). Phase II will also connect to similar systems in Austria, Hungary, Slovakia, Bulgaria and Serbia.

The project is part of TEN-T or Priority Axis 3, Key Area of Intervention 3.2 "Improving safety in all modes of transport", aimed at ensuring European safety and security standards in shipping as well as improving the information system Traffic Management of Vessels (VTMIS) and provision of River Information Services on Romanian Waterways.

The districts covered are: Constanţa, Tulcea, Galați, Braila, Calarasi, Yalomitsa, Giurgiu, Teleorman, Dolj, Olt, Mehedinci, Caraș-Severin.

Funding of the system is provided by state subsidies through the MA within the Sectoral Operational Programme - Transport, Priority Axis 3 - Modernisation of the Transport Sector to Protect the Environment, Human Health and Safety of Passengers.

The project financing contract was signed on October 29, 2009 with a total value of 49,989,094 lei, of which the total eligible value was 42,007,642 lei.

Project objectives:

RIS systems have three main objectives:

- transport must be safe (it includes minimising the number of accidents and incidents during the trip);
- transport must be effective (maximum increase in capacity for efficient water transport, increase vessel capacity, reduce travel time, reduce transport costs, reduce fuel consumption, reduce consumer efforts to work with RIS, effective

connections and economic modes of transport, efficiency of work in ports and terminals);

- transport must protect the environment (reduce environmental hazards and reduce pollution due to accidents, illegal activities and normal operations).

These objectives are reinforced by the fact that the services provided by the RIS systems will have to be reliable, effective and comply with the law.

Specific objectives for the project:

- providing RIS management and information services for inland waterway traffic complying with the requirements of the RIS Directive EC/44/2005 and related regulations;
- Increase in human and cargo traffic on inland waterways by reducing negative externalities of river transport due to reduced casualties and accidents, which reduces travel and costs.

Creating a single area of inland waterway transport by providing for European-level harmonisation and achieving interconnection of national RIS centres.

The RORIS II project falls under Priority Axis 3, KAI 3.2, which aims at “safer navigation by improving the vessel traffic management system and by river information services on Romanian waterways”. At present, the Romanian Naval Service is implementing RORIS II.

The objectives of the RORIS II RIS project, aligned with the requirements of European Parliament and Council Regulation (EC) No 44/2005 and the European Commission's specific regulations under this directive, are:

- increasing transport safety by increasing the length of waterways with automatic identification and localisation; increasing the number of RIS support requests;
- increasing the efficiency of transport by increasing the number of stationary stations for the identification and identification of ships; increasing the number of VHF radio stations communicating with ships.

Architecture of the RORIS II system

One of the main tasks of the project is to ensure the interoperability and operational harmonisation of the systems that are part of the RIS concept by developing a system architecture based on Directive 2005/44/EC and the results of the European research and development projects (IRIS I, IRIS II, GIS Forum, Platinum, etc.).

The RoRIS system has a hierarchical functional structure built on the following levels:

- Local level - Local Centres - to ensure the initial collection of sensor data, the receipt of data from different users, the transfer of data to different users and the transmission of data to the next level at the regional level;
- Regional level - Regional Centres - receives local data, filters duplicate data, transmits data at national level, provides regional coordination and establishes links between regional centres;
- National level - a national centre that collects data at a regional level, ensures the coordination of the whole system, exchanges information with other organisations, provides external interfaces for other applications;
- Terminals at the Ministry of Transport.

The RORIS II system develops a sensor network of AIS (automatic identification), radar and video surveillance. The concept and structure of the communication support network is completely redefined by digitally transferring all the information (including voice messages) into IP technology (Internet Protocol).

All of the information is transmitted directly or via radio sensors for sensors to communication nodes at local, regional, and central stations. The communication of information between all these communication nodes is via an external telecommunication service provider.

Components of the RORIS II system

The sensors used in the system are Radar, AIS, CCTV.

AIS network

The new RoRIS system aims to extend existing AIS services to cover as much as possible the Danube River.

The system will be structured on three levels: base stations at the local level or isolated points along the Danube; four regional centres in Drobeta Turnu Severin, Giurgiu, Galați, Tulcea; National Centre in Constanța.

Radar sensor

The purpose of radar equipment is to monitor and control the traffic 24 hours/7 days in the areas where the sensors will be located. Radar sensors will be placed in the following locations: Moldova Veche, Orshova, Drobeta Turnu Severin, Giurgiu, Oltenita, Calarasi, Negru Vodă, Braila, Galați, Galați - Grindu, Galați - Prut, Tulcea and Sulina.

Day and night video sensor

Video sensors will allow observation of areas of interest for daytime and nighttime conditions at distances of 30 to 4,000 metres. The places where the video sensors will be installed are: Moldova Veche, Orshova, Drobeta Turnu Severin, Calafat, Giurgiu, Calarasi, Negru Voda, Braila, Galati, Galați - Grindu, Galați - Prut, Tulcea and Sulina.

Meteo stations

Weather stations will be installed at any location where there is an ECDIS operator console. Within the regional centres a single meteorological station will be installed, the information of which will be shown to two operators: local and regional. Weather stations will be equipped with wind sensors (direction and speed), air temperature (degrees Celsius) and visibility (MOR).

The ECDIS River Basin Management Desktop Application

The ECDIS application is an integral part of the core of the entire system, integrating information from all system sensors.

VHF Voice Communication Network

The VHF radio network supports many of the RIS services that are used for:

- Waterway information services on temporary obstacles to navigation; faults in navigation aid equipment; short-term changes in working time for locks and bridges; navigation limitations due to floods and frost; current and future water levels at critical points; disaster relief services (coordination of patrol vessel assistance, incident information, patrol vessels information, police ships and special interventions, etc.);
- Mobile locking and bridge management services;
- Travel planning services; support services for law enforcement and rules in the following aspects: border management, compliance with traffic safety requirements and compliance with environmental protection requirements.

The vessel communication system under the Danube Radiation Regulation will have two functional levels:

- Local level - ships can communicate with each other and with the local RIS operator; communication with the ships will be carried out by the operators of the local centre in the area covered by this centre.
- Regional level - The Regional Operator of RIS may communicate with any ship within its jurisdiction.

For the VHF Voice System, there will be four regional centres, each of which has a number of local centres in subordination. The four regional centres are Tulcea, Galați, Giurgiu and Drobeta Turnu Severin. A similar system will be installed in the VTMIS to the Danube-Black Sea Canal. Each of the four regional centres works independently of the other three.

Services provided by the RORIS II system

Applications for RIS support services:

- electronic reporting of trips;
- advice to seafarers;
- statistics on ship traffic;
- ship registration/tracking application - is a flexible and fast tool that provides an overview of the Romanian flag vessels and their development over time in terms of technical characteristics and legal status;
- application/personal navigation database - develops a computerised work environment in the field of electronic document management and archiving, providing a solid platform for managing and archiving documents and records;
- database database application of the hull;
- disaster relief services;
- the request for a dangerous goods vessel.

Interface with other systems/institutions

Interface for data transmission to Border Police

A link will be made between RoRIS and the Danube River Border Surveillance System in one place, namely between the RoRIS Central Office and the Regional Border Police Directorate Constanta.

Within RoRIS an interface will be created to ensure the transmission of the following data:

- tracking and location data
- real time vessels (AIS and radars);
- passenger and crew lists;
- load information;
- dangerous goods
- statistics and analyses;
- sensor information: radar, AIS;
- other information from the ANR management:
- Ship information database, owners, etc.

- seafarers database.

In RoRIS, a separate consumer category has been created for the Lower Danube Administration - Galați (AFDJ) where the institution provides public data on the Danube River level, forecast for the next 2 days by locations, minimum depths by sector, and hydrometeorological newsletter[32]. At present, information on the level of the Danube River is provided by AFDJ and on the site of the Lower Danube River Administration - Galați [33] on the basis of Article 23 of the Convention on the Navigation of the Danube River, signed in Belgrade on 18 August 1948 and containing the main provisions on river navigation.

In 2010, the Danube Commission issued ***"Special navigation rules for the Danube River sector, located between the Sulina River and the Braila Harbor (km 175)"***. These "Special Navigation Rules" apply to the Lower Danube from Braila (175 km) to the Sulina River and are mandatory for all captains of vessels irrespective of their flag flying in the Lower Danube sector between Braila (km 175) and Sulina raid. Along with this, vessels are required to have the lights and signals prescribed by the International Rules for Preventing Collisions at Sea.

Navigation equipment of the inland waterways

Inland waterways are all rivers, lakes, reservoirs and canals on which ships can fly. On them, navigation is allowed not across the width, but only at the largest depth of the water space prepared for navigation and marked with navigational signs.

Navigation equipment on inland waterways serves to create safe conditions for sailing on ships. It is a system of shore and floating navigation signs. They serve to indicate the sides of the waterway (fairway) and its axis, the places to turn, the berths.

[32] http://www.roris.ro/portal/cale-navigabila.aspx

[33] http://www.afdj.ro/en/content/danube-water-level

Riverbank sign equipment

When it is necessary to be the axis of a long straight stretch of the waterway (fairway) or to direct the ship (the composition) on a specific path, use signs. They are linear (axial) and encircling.

Linear navigational barriers consist of two front and rear signs of the same shape, located one behind the other, the forward mark being less than the hindquarters, and are a continuation of the axis of the shipping route.

The Romanian Naval Authority is the specialised technical body subordinate to the Ministry of Transport and Infrastructure through which the Ministry performs its function as a state authority in the field of maritime safety.

The main tasks of the Romanian Naval Authority regarding shipping safety and environmental protection are the following:

- inspection, control and monitoring of shipping in Romanian sea water and inland waterways;
- fulfillment of the obligations assumed by international agreements and conventions from Romania;
- representing the Romanian government within the international organisations in the field of maritime transport;
- observing the application of the rules, regulations and international conventions of the European Union in the Romanian legislation;
- developing, approving and presenting draft laws and mandatory standards for approval by the Ministry of Transport and Infrastructure;
- performing port state control;
- coordinating of pollution prevention and response activities in Romanian navigable waters and actions to be taken in the event of navigational accidents and casualties;
- water protection against pollution from ships;
- sanctioning of violations and investigation of pollution and navigational accidents;
- technical surveillance and certification of marine and inland waterways, offshore drilling or other military equipment flying the Romanian flag;

- overseeing the compliance of Romanian naval transport with the provisions of the ISM Code and the ISPS Code.

The Romanian Naval Authority has also been designated to fulfill its obligations under Directive 2002/59/EC (VTMIS Directive), Directive 2000/59/EC (Ship and Port Facility Management) and Directive 2005/44 EC (RIS Directive). As a result, VTMIS, RoRIS, AIS, SafeSafeNet, CleanSeaNet, LRIT and other services and systems related to shipping safety, the environment, passengers, ships and cargo on sea and inland waterways.

2.3. Institutions responsible for providing navigation safety in Bulgaria

The waterway in the Danube River section from km 845,650 to km 374,100 is maintained by the competent Bulgarian and Romanian authorities as provided for in an agreement between the governments of both parties.

Navigational provision of navigation in the inland waterways of the Republic of Bulgaria, with the exception of the shipping route, is carried out by the State Enterprise "Port Infrastructure". Navigation in the Bulgarian section of the shipping route is provided by the Executive Agency "Exploration and Maintenance of the Danube River" (EAEMDR).

EAEMDR performs functions in accordance with domestic and international law concerning the servicing, exploration and maintenance of the conditions for navigation in the inland waterways of the Republic of Bulgaria.

The agency conducts its activity by:

• Provides the navigational-traffic situation in the Bulgarian-Romanian section of the Danube from km 374,100 to km 610,000;

• studies and studies the hydromorphological and hydrological regime of the Danube River in the Bulgarian section as follows: fluctuations at the water level; the temperature of the water; speed and direction of flow; flow of the river; ice regime; erosion of shores and islands; the formation of sand deposits and islands;

• collect and disseminate information on the condition of the waterway and the hydrometeorological regime of the river;

• studies the hydromorphological and hydrological regime in the area of the hydrotechnical facilities in the Bulgarian-Romanian section of the river Danube and organises unimpeded navigation in the region of the Ruse- Giurgiu Bridge;

• provides information on river research;

• notify the relevant authorities, ministries and agencies of taking precautionary measures in the event of floods, coastal erosion, ice phenomena, oil spills and others;

• study and coordinate the projects for construction of the hydro-technical and infrastructure projects, which are carried out on the river;

• coordinate the deployment of technical facilities in the riverbank in terms of shipping, shore and island destruction;

• performs hydro-meteorological observations in the Bulgarian section through the stations Novo Selo, Lom, Oryahovo, Svishtov, Ruse and Silistra and announces storm warnings for the provision of navigation;

• implements projects to maintain and improve navigation conditions along the Danube;

• participates in the localisation and liquidation of pollution from shipping activities in the common Bulgarian-Romanian section of the river;

• Issues short-term forecasts of the water levels and ice phenomena along the river in its common Bulgarian-Romanian section;

• Issues schemes for the extraction of deposits and deposition of deposits in the Danube river bed;

• provides the necessary information for the needs of the Bulgarian river information system;

• monitors the quantity of Danube waters.

In order to ensure the safety and security of shipping on the Danube, the Agency carries out the following actions:

• continuous monitoring of the state of the river;

• timely removal and restoration of the damaged navigation signs and maintenance of the shipping route in accordance with the requirements and recommendations of the Danube Commission;

• provision of operational information on the gauge of the shipping route;

• making corrections along the fairway;

• maintaining a working navigable waterway environment in the Bulgarian section of the Danube River;

• drawing water images of the risky segments of the gallows for shipping;

• Issuing a newsletter for the navigation and navigation conditions, notifications to the shipowners and daily broadcasting of “Hydrometeorological newsletter”;

• conducting hydrographic measurements in the critical sections for the shipping and for the security of the Ruse-Giurgiu Bridge;

• continuous monitoring of hydromorphological changes, disclosure of critical shipping areas (river thresholds) and appropriate measures;

• measurement of water quantities with Doppler technology;

• daily dissemination of water level forecasts for hydro-meteorological stations Ruse and Silistra;

• performing meteorological, climatic and meteorological observations;

• issuing permits for use of a water body for extraction of sediment deposits from the Danube River;

• maintaining the conditions for timely localisation and liquidation of potential oil spills;

• Creating an optimal organisation to timely forecast the nature and consequences of disasters, accidents and accidents.

Changes in the navigation situation and special temporary prescriptions to ensure the safety of inland waterway navigation are disclosed in “Notices to Skippers” on the website of the Bulgarian River Information Services http://nts.bulris.bg/. Skippers and crews are required to observe the waterway gauges posted in the “Notices to Skippers” and not to pass through critical stretches of water that exceeds what has been announced.

The terms and conditions for the sailing and the border regime in Bulgarian and foreign yachts, boats and other vessels for sport, tourism and entertainment, as well as the provision of water services with them in the internal sea waters, in the territorial sea and in the inland waterways of the Republic of Bulgaria are defined with Ordinance of the Council of Ministers of the Republic of Bulgaria /adopted by Decree of the Council of Ministers No 293 of 07.12.2009 and Prom. - SG, No. 99 of 15.12.2009)/.

In February 2018, in Ruse, Bulgaria and Romania signed an Agreement on the terms and procedure for performing joint inspections of inland waterway vessels in the Bulgarian-Romanian section of the Danube River.

The document is a result of the implementation of activities under the project “Development of a common database and legal framework for ship inspections carried out in the joint Bulgarian-Romanian section of the Danube through an interface to the national river information system (RIS)” - DANRiSS, financed under the Programme for cross-border cooperation INTERREG V-A Romania-Bulgaria 2014-2020 (brief description is provided below in this report).

By signing the Agreement, Bulgaria fulfills the requirements set out in Art. 17 of the Directive of the European Parliament and of the Council of 12 December 2006 laying down technical requirements for inland waterway vessels and repealing Council Directive 82/714/EEC (2006/87/EC).

2.4. **Institutions responsible for improvement of navigation safety in Romania**

From the Romanian side "Lower Administration of the Danube" – Galați [34] (AFDJ) operates as an autonomous state control and is the body for waterways for the Romanian Danube River sector from the border line - km 1 075 to the mouth of the Black Sea, Sulina branch, Sulina River. These include the shipping branches of the Danube, Borcea, Bala, Măcin, Vâlciu, Calea, branch Chilia with its secondary branches, the canal of Sfântu Gheorghe with the retentive canals and the secondary branches of the Sulina Canal called the Old Danube.

The main function of AFDJ is the provision of shipping conditions on the Danube through dredging, hydrographic exploration, coastal and floating signaling, pilotage of the maritime Danube sector between Sulina and Braila and in the Danube seaports, special river and maritime transport on the Danube, and international relocation as well as the fulfillment of the obligations of the Romanian State under the international conventions and agreements to which Romania is a part entrusted to it by the Ministry of Transport, Response to HGR 492/2003.

The main tasks performed by the administration are the following:

- Ensuring the depth of navigation by dredging the maintenance;
- carrying out topohydrographic surveys for observation and observation of the morphological situation, loading of the Danube strata, especially at the critical points, flow and alluvium measurements and current speed measurements;
- designing or consulting the completion of repair and maintenance works for bank protection and special hydro-technical works in order to improve the shipping conditions;
- carrying out surveys, dredging and relocation of obstacles in port basins and operational sites on request by port administrations on a contractual basis;
- making coastal and floating signaling;
- direction of navigation of difficult segments through semaphores and observation stations;

[34] http://www.afdj.ro/en

• developing proposals for special shipping rules for the Danube River and for the maritime sector and submitting them for approval by the competent authorities;

• collection and processing of hydrometeorological data, preparation of forecasts for the level of the Danube River change in the Romanian sector;

• daily data for forwarding the hydrometeorological newsletter of the Danube River to Romania Actualitati radio station;

• editing and dissemination of the hydrometeorological newsletter for the Danube with hydrological data, meteorological data, minimum navigational depths, general gauges and other recommendations for difficult navigational sectors;

• preparing and distributing notifications to navigators;

• approval of construction works on waterways and work on crossing and crossing the Danube River;

• providing the necessary information to the Danube Commission for the preparation of the Danube's Large Work Plan;

• preparation of navigation maps for the Romanian Danube River sector;

• participation in the Danube Commission and other international bodies, markets and exhibitions;

• coordinating the activities of economic agents interested in the breakdown of ice on the Danube;

• providing services and hiring - on a contractual basis - to Romanian or foreign legal entities;

• marine pilotage in the Danube, from the Sulina bar - Braila sector in accordance with Articles 31, 32 and 33 of the Danube River Shipping Convention, a regime signed in Belgrade in 1948 as well as other legal regulations are in force;

• fulfillment of Romania's obligations under international conventions and agreements to which Romania is a party, in accordance with the law;

• performing editorial and printed activities;

• examine and authorise pilots annually and issue pilot licenses for the Danube;

• approval of studies and projects to be carried out in the riverbed and on waterway platforms;

• setting tariffs for all facilities and services included in the site of activity;

• overseeing the development of construction work carried out on the bed and on the waterways;

• approval of sites and execution of construction works for the extraction of ballast from the Danube and its tributaries;

• approval of the extraction activities of the Danube ballast and its arms;

• endorsement of the work done in the Danube bed and its subsidiary weapons for port investment and other purposes, as well as the areas for disposal of the material resulting from this activity;

• establishing and approving the waste disposal areas for materials resulting from the deep maintenance of long, anchor and docks;

• centralisation and systematisation of data related to maritime traffic, hydrological and meteorological data, etc., as well as those requested by the Danube Commission;

• maintenance and repair of all shores that are publicly owned and managed by the administration and all those administratively owned;

• ensuring the use of river infrastructure, state public property by third parties, through concession, lease or association contracts, in accordance with the provisions of the law;

• provision of telecommunications, radiotelephony, telex and data transmission services;

• the preparation of annual and future programmes for the main indexes of maintenance pass-topohydrographic studies, dredging, maintenance and repair of hydrorotechnical constructions - as well as repair and modernisation of public goods state property and administration property of goods;

• contracting of loans from banks and other financial institutions in order to achieve the proposed objectives;

• conclusion of sales contracts with Romanian and foreign economic agents, equipment, installations, materials.

3. Navigation safety in the cross-border region Romania-Bulgaria

3.1. Navigation safety problems in the Romania-Bulgaria cross-border region and their overcoming through the joint efforts of the two countries

In recent years, modern logistics, navigation and information systems have been developed for the Danube, which contributes to improving the conditions of shipping and reduces the risk of accidents.

The main problems with Danube navigation are unsatisfactory parameters of the shipping route, poor navigational conditions (fog, low water levels and other obstacles), non-compliance with the shipping restrictions imposed due to low water levels and other reasons. River navigation problems stem from erosion on shores and islands and intersection of certain stretches, leading to a decrease in depths.

Existing hydrological and climatic conditions along the country's only inland waterway - the Danube, require measures to improve navigational conditions and provide a minimum depth of 2.5 metres for the whole or most of the year necessary for sailing of ships up to 3 000 tonnes. Inland waterway transport is of great importance and has underdeveloped potential for countries along the Danube bank.

However, inland waterway navigation depends strongly on the morphological and climatic conditions of the river and the quality of the existing infrastructure. These conditions are mainly constrained by two factors: one of which is the so-called bottlenecks. These are areas with insufficient shipping conditions, e.g. due to hard rock formations in the river that lead to reduced water depth. The other factor is the weather conditions (and in the longer term the climate), which, depending on precipitation and evaporation, can lead to low river water levels in certain seasons. One of the main seasonal factors influencing shipping safety is the winter mode of shipping along the river. Winter regime means the nature of changes in water temperature during the winter period of the year and the occurrence of ice phenomena. The cause of the ice phenomenon is the temperature of the air. The water mass interacts with the atmosphere and the river bed, thus not carrying out mutual heat exchange.

In addition to these two natural factors, the laws regulating the maximum permissible number of barges as well as the built-in infrastructure constructions by individual countries also limit the number of vessels and the speed at which they can travel.

The aforementioned factors directly affect the traffic on the Danube, as the delays of the vessels are determined by the fact that the route in the Romanian-Bulgarian section along the river is closed in a large number of days of the year.

Navigation is carried out in accordance with various national and international legislative instruments, which, along with the available infrastructure and natural resources, guarantee the safety of shipping.

In order to increase the economic attractiveness of shipping, the following basic needs related to its safety can be defined:

- constantly maintaining the depth and breadth of the fairway in view of the continuity of the availability of sustainable and efficient sailing conditions
- keeping the radius of the curve
- construction and maintenance of the necessary port and concierge infrastructure
- low water regulation through hydraulic structures (e.g. breakwaters) and dredging
- building and maintaining an infrastructure that needs to be located taking into account relevant physical and other factors (e.g. proximity to the market and connectivity to the wider transport network)
- implementation of systematic preventive measures on the formation of ice water in the waterway.

The overall objective of the measures identified in this analysis is to provide the recommended parameters of the fairway and the navigation safety conditions across the Romania-Bulgaria cross-border area by optimising the maintenance activities of the waterways. This goal is permanent and all actions taken must be in line with it.

In order to ensure navigation safety and increase the attractiveness of shipping and the share of inland waterway transport on the transport services market, concerted action by both sides of Romania and Bulgaria is needed in two main directions:

- to eliminate/reduce the problems of shipping on the Danube and its canals and to improve their maintenance in order to increase the patentability and speed of movement;
- modernisation of cargo handling facilities under competitive conditions to other modes of transport.

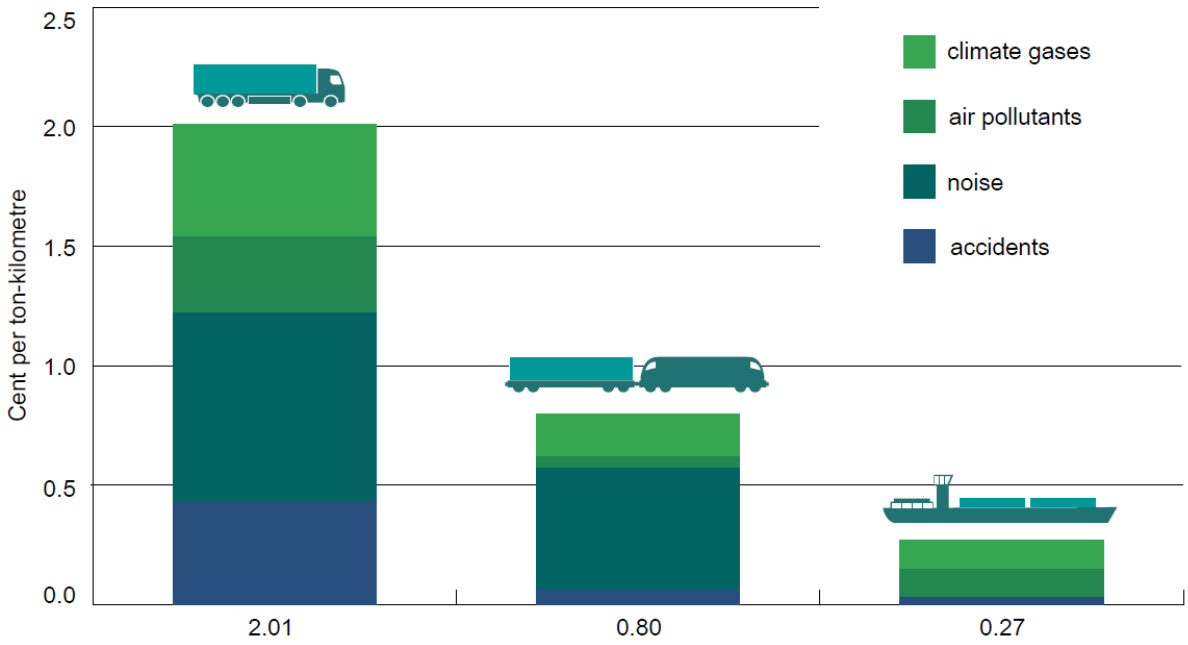
The envisaged joint actions in the Action Plan to be developed in the framework of the Lower Danube Navigation Safety Strategy will contribute to enhancing navigational safety and the attractiveness of inland waterway transport by maintaining the depth and breadth of the fairway, regulation of low water improvement of the infrastructure, including the channels, and also by removing the critical sectors that affect the navigation on the Danube and the canals of the waterway. This will lead to an increase in the duration of the Danube's annual operation, a reduction in shipping and, implicitly, an increase in the credibility and competitiveness of this transport.

The joint efforts of Romania and Bulgaria to overcome the problems related to navigation safety and investments in improving shipping will be completed by modernising the existing infrastructure in the ports located in the central TEN-T, thus providing a combination of factors may increase the attractiveness of shipping and increase the volume of goods transported by water and the extent of use of waterways and ports.

3.2. River transport accidents in the cross-border region

Compared to the other main types of freight transport - road and rail, river transport has the lowest external cost. According to 2007 data, these costs are 0.27 eurocents, at 0.80 eurocents for railways and 2.01 for road transport. Part of the external transport costs are due to the costs of accidents during transport. In river transport these costs also have a very low value. This is due to the extremely small number of transport accidents.

Figure 7. Amount of external costs for different modes of transport



Source: PLANCO, 2007.

According to Eurostat data in 2008-2017, the peak of accidents in Bulgarian river transport was in 2012 with 5 incidents. In the near to this year 2014 and 2010 there were 4 and 3 incidents respectively. With the exception of 2015 when one incident occurred during the remaining period of observation in the river transport of the country, no accident or no information has been reported.

While this country is the best performing among the countries listed below, Romania is at the opposite pole. In the period 2008-2016 there were an average of 53 accidents per year. This level is very high compared to the other accident recorders Austria and Hungary with respectively 19 and 13 incidents average annual.

Table 9. Number of inland waterway accidents in EU countries during 2008-2017

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Bulgaria	:	:	3	0	5	4	0	1	:	:
Czech Republic	10	11	7	9	3	7	6	12	20	11
Croatia	2	0	3	1	2	2	1	2	3	:
Hungary	2	8	38	13	21	4	5	6	20	:
Austria	:	18	19	14	12	25	19	28	17	:
Poland	:	8	9	5	5	12	10	8	4	6
Romania	30	51	32	34	80	81	41	75	53	56
Slovakia	:	:	16	9	5	9	:	:	:	:

: - lack of data.

Source: Eurostat, 2018, Institutul Naţional de Statistică Transportul portuar maritim de mărfuri şi pasageri 2017, 2018.

The seriousness with the problem of accidents in Romania becomes even more significant if dangerous goods incidents are taken into account. For the same period in Romania, they are the most compared to the same countries in the above table - 7. In Bulgaria there was only one such case in 2013.

The conclusion that can be drawn from the short analysis of river transport accidents is that they are concentrated in the Romanian country. Although a small part of them is related to the transport of dangerous goods, which could lead to serious damage in the cross-border area. It is therefore necessary to make more serious and in-depth studies on the causes and scale of this phenomenon.

3.3. Navigation risk assessment

The assessment of risk factors for navigation is a rare practice in the institutions involved in shipping. According to a Polish publication, this is only done in Denmark and Finland from all countries bordering the Baltic Sea.[35]

In the publication of the Danube commission "Basics of Danube Navigation" there are outlined practical rules for avoiding shipping risks, but without providing a comprehensive system of risk analysis and assessment.[36]

Navigation should be understood as a system of highly interconnected elements. These elements include the Danube waterway, vessels and their cargoes, ports such as hubs connecting river navigation with road and rail transport, the river information system along with the political and legal framework.[37] The potential of navigation on the Danube can only be fully realised when the interaction of all these elements takes place.

[35] Gucma, L. Navigational safety management, 2011, Maritime University of Szczecin.

[36] Commission du Danube, Dispositions fondamentales relatives a la navigation sur le Danube, 2010.

[37] via donau, Manual on Danube Navigation, 2013.

The navigational safety of navigation can be defined as a complex feature of shipbuilding which determines the ability of ships to move without threat (in the navigational sense) to the life of humans and the integrity of ships and vessels.

Navigational hazards are subdivided into four groups:

- Dangers coming from the bottom (shallows, reefs, stones, sewers, depths, pits, shallow waters) and wrecks;
- hazards caused by hydrometeorological factors (wind, fog, icy, currents, etc.);
- floating objects (mines, barrels, buoys, fishing nets, etc.);
- hazards in the form of restrictive lines on maps (polygon boundaries, prohibited navigation areas, traffic separation systems, etc.) and demarcation lines.

In its resolutions, the International Maritime Organisation has drawn up the following safety requirements, which can also be adapted to river transport:

a) establishing uniform requirements for the design, equipment, the supply of vessels and their fitting with qualified crews;
b) organising the watch service;
c) timely notification of marine hazards;
d) development of recommended routes through oceans and seas;
e) creating systems for separating the movement of ships in narrow and intense shipping areas;
f) developing a system for unified identification of navigational hazards;
g) organising piloting and icebreaking;
h) developing and applying rules on maneuvering and signaling when ships are diverted;
i) mandatory investigation of marine casualties, identification of causes and development of recommendations for their prevention.

According to the categorisation of the inland waterways of Europe, the Bulgarian section of the Danube falls in class VII. The technical parameters of the water sections falling under categories VI and VII should provide safe navigational conditions for the movement of ships carrying oversized, heavy and bulky goods as well as containers stacked on three and four levels.

The conditions of navigation on Danube inland waterways also influence the seasonal fluctuations at river level (high water, low water and ice formation) and the presence of narrow places along the waterway. Controlling these phenomena in many cases is impossible and has a negative impact on shipping. At certain times of the year the level of the Danube fluctuates to a varying extent in the individual sections due to the specific features of the climatic and geological conditions.

Chart 3. Vessel draft restrictions in the Bulgarian section of the Danube River

Between 12% and 18% of the days of the year, the Danube River Basin is inappropriate for safe navigation during a ten-year period.

Ice-water formation is another risk factor. Nearly a month in 2017, the flow of the river was stopped when the ice in places reached 70-80%. The occurrence of such force majeure is accompanied by an increase in the variable costs of river operators and a decrease in consumer demand due to an increase in the cost of transport services.

Another weakness of the Bulgarian section of the Danube River is the presence of narrow places. These waterways of international importance belonging to the European inland waterway network and whose parameters do not meet those approved for classification in the relevant category are defined as bottlenecks. The presence of narrow sites along the Danube is a sign of the unsatisfactory quality of waterways and difficult shipping. The total length of these stretches is 91 km, which represents approximately 19.4% of the length of the Bulgarian waterways. They fall into the category of narrow places of strategic importance and are located near “Port Complex – Ruse” EAD.

The insufficient funds and the lack of suitable dredging equipment accompany the maintenance of the waterway in Bulgaria. As noted in Viadonau's Annual Report for 2016:

“Although good hydrological conditions throughout the year, the conditions of the fairway were less favorable in the second half of 2016. This was due to inadequate maintenance and the necessary capital intervention. In Hungary and Bulgaria in 2016 maintenance was not done due to lack of funds and the availability of suitable dredging equipment”.[38]

Maintaining project depths in ports is of particular importance for their commercial exploitation, but it is also a foundation for transport safety - avoiding emergency cases such as “touching the bottom of the ship” or even worse “jamming”. Incidents of this kind can lead to serious consequences for both the ship itself and the port and the state as a whole. In addition to the risks of damage to the hull and possible environmental damage from pollution, account should also be taken of the reputation of Bulgarian ports as safe. Damage to damaged reputation is indirect, but can be far beyond the damage of a particular emergency. Some of these damages will be measured by higher insurances for visiting ships, respectively higher freight rates and overall loss of competitiveness and reduced port turnover.

The inadequate depth of the fairway limits the rational utilisation of vessel capacity and therefore it is possible to transport only certain types of cargo, and this is directly related to the loss of inland waterway market positions and the reduction of consumer demand.

The navigation channel in the Bulgarian-Romanian section of the Danube does not meet the internationally accepted project standards issued by the Danube Commission. There are restrictions on navigational safety and accessibility of canals that limit the operational efficiency of the river fleet, the capacity of the river and the attractiveness of this transport.

[38] viadonau, Annual Report on Danube Navigation in Austria 2016.

Diagram 9. Strategic and main bottlenecks along the Danube River

Note:[39]

"Main bottlenecks" are sections of European waterways whose parameters are not in line with the requirements applicable to inland waterways of international importance in line with the new classification of European inland waterways (Class IV).

"Strategic bottlenecks" are other sections which meet the essential requirements of Class IV, but need to be modernised to improve the structure of the network or to increase the economic capacity of inland waterway traffic.

Source: via donau.

According to the report of the UN Economic Commission for the Blue Book, the strategic bottlenecks in the Danube River (E 80) range from 845.5 to 375.0 km, characterised by a low depth of the fairway during dry seasons (less than 2.50 m - a value recommended by The Danube Commission) of several critical sections, i.e.:

- from 845.5 to 610.0 km, with a fairway depth limited to 2.10-2.20 m 10-15 days a year, and
- from 610.0 to 375.0 km, with a fairway depth limited to 1.80-2.00 m for 20-40 days a year.[40]

[39] According to the definitions in: UNECE, "BLUE BOOK", 2012.

There are also issues related to erosion of shores and islands and intertwining of certain stretches of the river, which leads to a decrease in depths. The problem of preserving the cleanliness of the Danube River in the Bulgarian area is a matter of utmost importance. Both the water and the bottom are contaminated with sludge and deposits in many places. In the case of small depths of tallweg, especially in periods of low water, conditions are created that can cause ship storms and incidents. This could result in the discharge of waste water and water contaminated by oil and/or marine fuel that would cause pollution of the river. Improving the depth in critical sections will reduce the likelihood of incidents of this nature. In these circumstances, it is necessary to take measures to improve the parameters of the shipping route and the coastal and islands accompanying this objective.

A serious problem is also the state of the existing port infrastructure - morally and physically outdated, use of equipment not in the foreground, etc. (see point *1.3 State of the port infrastructure in the cross-border region*).

A serious safety issue is non-compliance with the shipping restrictions imposed due to low water levels or other reasons. A major influence on improving the safety and security of the transport process is the responsibility of each transport infrastructure operator to strictly comply with the requirements of compliance with technical regulations and standards for its use. Negative impact on the safety and security of traffic violates operating rules in accordance with technical standards and standards.

After the brief summary of the risk factors, a systematisation of the extracted elements of the navigation is made. At the same time, the main problems and manifestations of these elements, understood as risk factors, are presented.

[40] Ibidem.

Table 10. Risk factors of navigation in the cross-border region

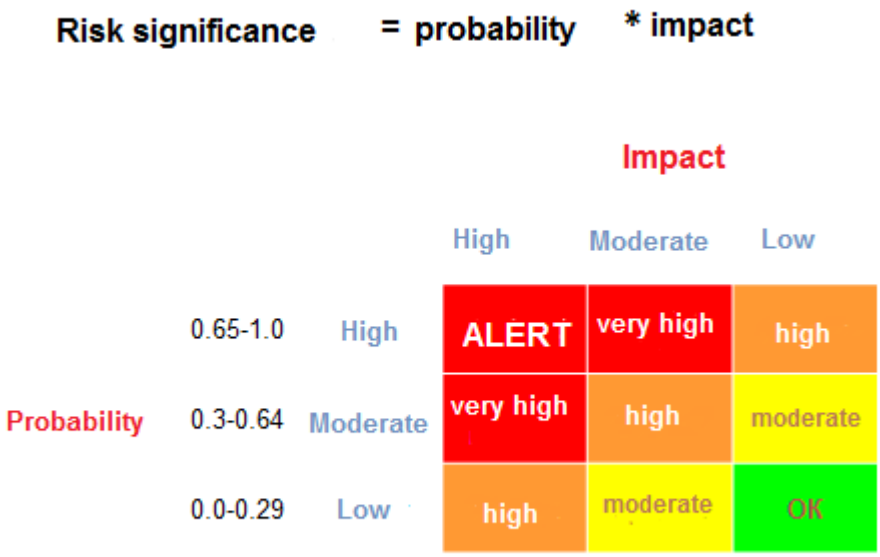
Risk factors	Problems and manifestations
Ensuring a safe waterway	• Seasonal fluctuations at the level of the waterway • Ice formation • Obsolete and inefficient drainage equipment • Insufficient financing of maintenance activities • Coastal erosion and islands and entanglement • Availability of bottlenecks
Vessels and cargoes	• Compliance with shipping restrictions and operating rules • Management of loading and unloading activities
Port infrastructure	• Old quay mechanisation • Lack of intermodal connectivity
RIS	• Need to complete the system • Traffic monitoring and management

Source: made by the authors.

Most problems exist in maintaining the waterway. There is a need to concentrate efforts on planning measures to increase navigational safety. In most cases, the problems are related to investments, and only in compliance with the restrictions and the RIS should be taken "soft" measures that address the subjective factor.

The next step in the risk analysis has been to assess the likelihood and impact of individual groups of risk for navigation. This methodology has been applied to the methodology proposed in the technical proposal. Three-tier scale is used to assess probability and impact. The highest value of 3 pts is placed with the highest probability and impact. Conversely, 1 point is placed on factors with the lowest probability and degree of impact.

Diagram 10. Risk assessment matrix



The results of this assessment are presented in the following table. The highest risk exists in providing the waterway and port infrastructure. Priority should be given to efforts to improve navigation on the Danube River.

With lower priority are the factors related to vessels and RIS. Measures should focus on reducing the impact of risk factors while preserving the low probability of occurrence of the event.

Table 11. Results of navigation risk assessment

Risk factors	Probability	Impact	Overall assessment
Ensuring a safe waterway	2	2	4
Vessels and cargoes	1	2	2
Port infrastructure	2	2	4
RIS	1	2	2

The number of accidents occurring in freight and passenger transport is an indicator that characterises navigation safety. In the analysis of the accidents in the last years in the cross-border region, it was found that while in Bulgaria they are very rare, in the neighbouring Romania such incidents occur very often. Therefore, there is a need to seriously analyse the causes of these accidents and to identify measures to reduce the risk of accidents.

As a systemic weakness, it can be noted that no systematic risk analysis is performed and there are no observed no measures to overcome or mitigate the risk factors.

4. SWOT analysis of waterway transport infrastructure in the cross-border region

The analysis of strengths and weaknesses, opportunities and threats (SWOT analysis) summarises the analysis. It includes the most important features of river transport infrastructure in the cross-border region as well as the peculiarities of the external environment that are expressed as opportunities and threats.

The strengths of the site analysed relate to the benefits of inland waterway transport and navigation to other modes of transport in terms of economy, environment and transport, the functioning information system and institutions, and the safety of river transport.

Weaknesses stem from the worn out water transport infrastructure, the problems that come from maintaining waterway parameters and low connectivity with other transport networks.

The options presented refer to the unused capacity of port handling facilities, the construction of intermodal terminals and the availability of programs and tools to finance the modernisation and construction of new infrastructure and the improvement of its management.

The threats to the development of river transport infrastructure come from disregarding the development of this mode of transport in relation to other modes of transport and, above all, the road, resulting in low public investment, connectivity and maintenance of existing infrastructure.

Table 12. Strengths, weaknesses, opportunities and threats analysis

Strengths	Weaknesses
•low direct and external costs • ability to transfer large amounts of cargo once • the lowest degree of environmental pollution • high degree of safety of river transport • 24-hour freight and passenger transport • low costs for building and maintaining the main and the accompanying infrastructure • an information system for shipping traffic management • functioning institutions responsible for navigating and maintaining the waterway	•high dependence on the changing weather conditions of the fairway, blocking of transport activity and uncertainty over delivery times • low operating speed • low network connectivity with other transport networks • high degree of physical and moral degradation of river transport infrastructure • old and low-productive facilities to maintain the fairway • lack of a network of intermodal terminals in the cross-border region
Opportunities	**Threats**
• unused capacity of the waterway and the built port infrastructure • increasing public awareness of the use of environmentally friendly transport • improving cooperation for the development of intermodal supplies • a favourable policy framework • international programmes and funding for the development of river transport and relevant infrastructure • construction of intermodal terminals • use of public-private partnerships to develop and modernise river transport infrastructure • the establishment of the “silk road”	• low priority for river transport development in national strategy papers • insufficient costs of modernising river transport infrastructure • insufficient costs of maintaining the waterway • the construction of new bridges in the cross-border region

The main conclusion of the analysis is that with the help of well-balanced public and private investments and projects in the infrastructure and the connectivity of river transport with road and railways. the network can achieve significant economic results with positive social and environmental dimensions.

5. Vision, missions and strategic goals, investment priorities and operational objectives

The system of a strategic framework consists of vision, mission, investment priorities and operational objectives. It was developed taking into account the results of the analysis and the SWOT analysis. The strategic framework is aimed at strengthening strengths, reducing weaknesses and exploiting opportunities for development, taking into account the resulting threats.

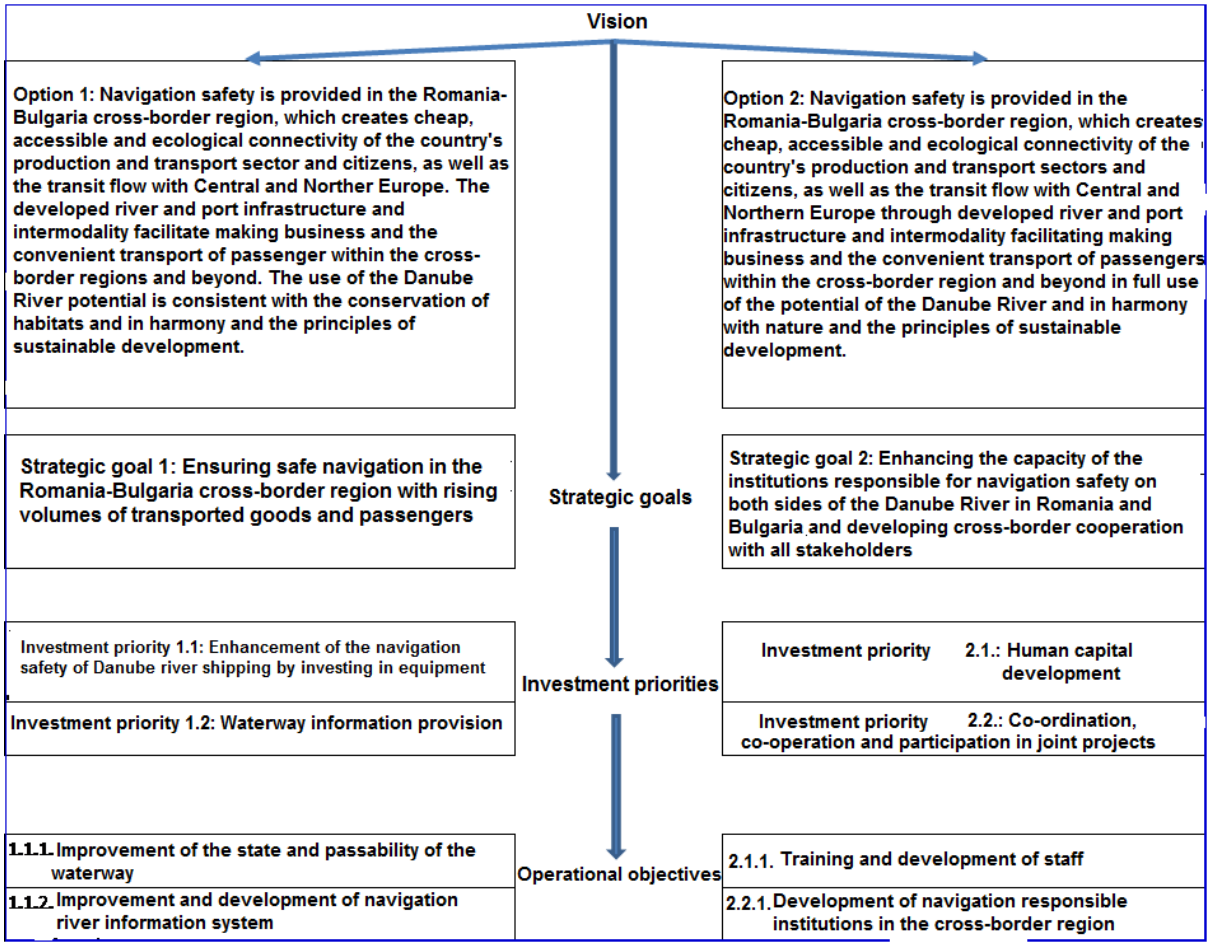
Apart from the results of the analytical part, the development of the strategic framework is in line with the targeting hierarchy and the logic of intervention. Other strategic documents that were created in other similar projects or were the result of arrangements reached at partner meetings between the responsible authorities were also considered. Thus, continuity and consistency between the individual planning documents was created.

In accordance with the order's order, two variants of the vision are presented, one of which should be chosen by the Contracting Authority. Both are compatible with the proposed target framework so that no change is required for one or other vision choices.

Two strategic goals have been drawn up. The first one focuses on the navigation safety infrastructure and the second on the institutions responsible for Lower Danube navigation.

Accordingly, two strategic priorities are identified for achieving each strategic goal. Each of these priorities is specified for operational purposes.

Diagram 11. Strategic framework



In addition to the strategic formulations, a mission has been developed, which is presented in the bottom box.

Mission

The responsible navigational safety authorities in the Romania-Bulgaria cross-border region jointly plan, implement, observe, exchange information and provide conditions for safe navigation in the Lower Danube under agreed international agreements using state-of-the-art equipment and apply appropriate technologies to provide the necessary for safe navigation parameters of the waterway, have highly qualified staff and sufficient financial resources to implement the strategic and operational their plans and their participation in international networks allows the continuous development of their capacity, the exchange of useful information and the application of frontier experience and practices.

6. Action Plan

6.1. Activities and expected results

For implementation of the strategic framework, an action plan has been developed, which consists of selected activities to achieve the objectives, responsible institutions, deadlines, financial resources for each activity. In addition, the expected results and performance indicators, outcomes and impacts are added to the action plan summary table (see Annex 1). The Action Plan was developed in a time horizon of 2019-2025 including.

Activities can essentially be divided into investment and “soft”, with investment being geared towards improving the navigation infrastructure and the institutions responsible for it, while “soft” measures are related to the development of human capital using this material base. Some activities envisage combining these two types of activities with a view to achieving a complex impact of the intervention measure.

Activities are presented in a summarised manner so that they can be specified when awarding contracts for their implementation. In this way, those who implement the Action Plan can have flexibility and take into account the current market situation.

Another feature of the activities is that they have been developed for joint implementation between the Bulgarian and the Romanian side. In preparing their implementation between the two countries, it is necessary to discuss and define the concrete content of the measures to be implemented by each country.

The expected results are related to the activities envisaged for implementation. These activities receive a material dimension.

The activities foreseen in the plan, arranged according to the strategic framework, together with the institutions responsible for implementing them and the deadlines for implementation, as well as the expected results are presented in the following table.

Table 13. Activities and expected results of the Action Plan

Strategic goals and operational objectives, investment priorities/activities	Responsible institution and partners	Deadline	Expected results
Strategic goal 1 : Ensuring safe navigation in the Romania-Bulgaria cross-border region with rising volumes of transported goods and passengers			
Investment priority 1.1: Enhancement of the navigational safety of Danube river shipping by investing in equipment			
Operational objective 1.1.1. Improvement of the state and passability of the waterway			
1.1.1.1. Monitoring of the waterway - investments in vessels for monitoring the parameters of the waterway (echolocation and other), automatic measuring stations, signs and training of the staff to work with them	EAEMD/CN APDF SA Giurgiu/CN APDM SA Galați	**2019 - December 2022**	Number of new ships for waterway monitoring Purchased and installed new automatic measuring stations Staff, trained to work with the new equipment
1.1.1.2. Investments in supporting facilities (multi-purpose dredgers, barges, pontoons, maneuvering ships, pipes, navigation signs, shore lights, etc.) - providing financing, purchasing and using	EAEMD/CN APDF SA Giurgiu/CN APDM SA Galați	**2019 - December 2022**	Purchased new dredging vessels Purchased new barges Purchased new pontoons, pipes, etc. Purchased and installed new navigation signs
Investment priority 1.2: Waterway information provision			
Operational objective 1.2.1. Improvement and development of navigation river information system			
1.2.1.1. Completing the development and deployment of RIS base modules	SEPI/Romanian Naval Authority	**2019 - December 2020**	Developed and implemented all RIS base modules in both countries
1.2.1.2. Planning and development of new RIS modules	SEPI/Romanian Naval Authority	**2021 - December 2024**	Developed new functional RIS modules
1.2.1.3. Full integration and permanent exchange of data with other RISs that provide information on shipping across the Danube	SEPI/Romanian Naval Authority	**2019 - December 2025**	Fully integrated data bases
1.2.1.4. Continuous development and provision of convenient user interface to RIS	SEPI/Romanian Naval Authority	**2019 - December 2025**	User friendly RIS interface
Strategic goal 2: Enhancing the capacity of the institutions responsible for navigation safety on both sides of the Danube River in Romania and Bulgaria and developing cross-border cooperation with all stakeholders			
Investment priority 2.1: Human capital development			
Operational objective 2.1.1. Staff training and development			
2.1.1.1. Providing ongoing training, improvement and staff development	EAEMD/CN APDF SA Giurgiu/CN APDM SA Galați	**2019 - December 2025**	Conducted staff trainings for developing new skills and acquiring new knowledge
2.1.1.2. Developing capabilities for analysis and management of navigation risk	EAEMD/CN APDF SA Giurgiu/CN APDM SA Galați	**2019 - December 2020**	Created and used navigation risk management system
Investment priority 2.2: Co-ordination, co-operation and participation in joint projects			
Operational objective 2.2.1. Development of the authorities responsible for navigation in the cross-border region			
2.2.1.1. Investments in the material base for ensuring the operational activity	EAEMD/CN APDF SA Giurgiu/CN APDM SA Galați	**2019 - December 2023**	Number and type of purchased equipment Number of implemented projects Amount of invested funds
2.2.1.2. Encouraging co-operation and participation in professional networks	EAEMD/CN APDF SA Giurgiu/CN APDM SA Galați/SEPI/Romanian Naval Authority	**2019 - December 2025**	Integration of Bulgarian and Romanian institutions in European networks
2.2.1.3. Improving the capacity for participation and implementation of international and national projects	Ruse Municipality/Giurgiu Municipality/EAEMD/CN APDF SA Giurgiu/CN APDM SA Galați/SEPI/Romanian Naval Authority	**2019 - December 2021**	Available capacity for preparation of successful project proposals and project management
2.2.1.4. Improving the coordination, collection and exchange of information with ports and river port operators	EAEMD/CN APDF SA Giurgiu/CN APDM SA	**2019 - December 2025**	Improved coordination and communication with ports and port operators

6.2. Indicative financial framework

The financial resources needed to implement the action plan are summarised by activity. This is done with the idea of greater flexibility in the allocation of funds by individual items and projects of the output activities. Moreover, when budgeting the performance of each activity can be taken into account the current prices and according to the technical specifications and requirements for the supplies and services to draw a specific estimate for each order.

The pledged amounts are in line with the scale of the funds provided in other similar documents such as Fairway Rehabilitation and Maintenance Master Plan for the Danube and its Navigable Tributaries: National Action Plans. Update October 2017.

The total indicative value for the implementation of the activities in the Bulgarian and Romanian parts is EUR 40.95 million. Most resources are earmarked for operational purposes 1.1.1.

The indicative financial framework is presented in the following table.

Table 14. Indicative financial framework of the Action Plan

Strategic goals and operational objectives, investment priorities/activities	**Financial resources, million euro**
Strategic goal 1 : Ensuring safe navigation in the Romania-Bulgaria cross-border region with rising volumes of transported goods and passengers	
Investment priority 1.1: Enhancement of the navigational safety of Danube river shipping by investing in equipment	
Operational objective 1.1.1. Improvement of the state and passability of the waterway	
1.1.1.1. Monitoring of the waterway - investments in vessels for monitoring the parameters of the waterway (echolocation and other), automatic measuring stations, signs and training of the staff to work with them, out of which:	**18**
investment costs	12
operational costs	6

Strategic goals and operational objectives, investment priorities/activities	Financial resources, million euro
1.1.1.2. Investments in supporting facilities (multi-purpose dredgers, barges, pontoons, manoeuvring ships, pipes, navigation signs, shore lights, etc.) - providing financing, purchasing and using, out of which:	**20**
investment costs	12
operational costs	8
Investment priority 1.2: Waterway information provision	
Operational objective 1.2.1. Improvement and development of navigation river information system	
1.2.1.1. Completing the development and deployment of RIS base modules, out of which:	**1**
investment costs	1
operational costs	
1.2.1.2. Planning and development of new RIS modules	**1,5**
investment costs	1,5
operational costs	
1.2.1.3. Full integration and permanent exchange of data with other RISs that provide information on shipping across the Danube, out of which:	**0,5**
investment costs	0,5
operational costs	
1.2.1.4. Continuous development and provision of convenient user interface to RIS, out of which:	1
investment costs	1
operational costs	
Strategic goal 2: Enhancing the capacity of the institutions responsible for navigation safety on both sides of the Danube River in Romania and Bulgaria and developing cross-border cooperation with all stakeholders	
Investment priority 2.1: Human capital development	
Operational objective 2.1.1. Staff training and development	
2.1.1.1. Providing ongoing training, improvement and staff development, out of which:	**0.35**
investment costs	
operational costs	0.35
2.1.1.2. Developing capabilities for analysis and management of navigation risk, out of which:	**0.2**
investment costs	
operational costs	0.2

Strategic goals and operational objectives, investment priorities/activities	Financial resources, million euro
Investment priority 2.2: Co-ordination, co-operation and participation in joint projects	
Operational objective 2.2.1. Development of the authorities responsible for navigation in the cross-border region	
2.2.1.1. Investments in the material base for ensuring the operational activity, out of which:	**0,5**
investment costs	0,5
operational costs	
2.2.1.2. Encouraging co-operation and participation in professional networks, out of which:	**0.1**
investment costs	
operational costs	0.1
2.2.1.3. Improving the capacity for participation and implementation of international and national projects, out of which:	**0.1**
investment costs	
operational costs	0.1
2.2.1.4. Improving the coordination, collection and exchange of information with ports and river port operators, out of which:	**0.2**
investment costs	
operational costs	0.2
Total	**40.95**

6.3. Risk management measures

The tools and skills needed to manage the risks and to obtain reasonable assurance that the objectives of the Strategy will be achieved should be selected according to the types of risks and optimal spending of the institutions responsible for the implementation (including time).

In order to achieve quality risk management in the implementation of the Strategy, the following definitions should be given:

- **Risk** is any uncertain event that may prevent the Strategy from achieving its goals in an effective and efficient manner. It depends on the ratio between probability and magnitude of damage from the occurrence of an event associated with the implementation of the strategic document.

- **Risk management** is a continuous process that is an integral part of the control over the implementation of the Strategy.

Risks endangering the implementation of the Strategy

Risk 1: Poor communication and coordination (co-ordination) between the Romanian and Bulgarian institutions responsible for the Lower Danube navigation safety.

Risk 2: Immediate reporting of changes in supranational regulations related to inland waterways along the Danube River and changes in the regulatory framework of Romania and Bulgaria that are relevant to the activities carried out and the expected results from the implementation of the Strategy.

Risk 3: Political changes and actions at national and supranational level impeding the implementation of the Joint Strategy.

Risk 4: Reducing funding due to a contraction in the budgets of funding institutions.

To mitigate or overcome the impacts of the resulting risks, comprehensive measures have been developed, which are presented in the following statement.

Risk 1: Measure "Good organisation of the coordination process and established mechanisms for regular communication between the responsible institutions"

The Strategy and Action Plan outline the problems, offer solutions and coordinate the efforts of the responsible institutions to improve the navigation in the cross-border region.

A Joint Co-ordination Unit (JCC), composed of representatives of the individual responsible institutions of both countries, will be organised, and the same may be rotated. This will allow to reduce the risks associated with the large number of contacts between different representatives of the responsible institutions during the implementation of the Strategy. Within the framework of the work of the JCC, the levels of communication and communication channels to be used by the responsible institutions from the cross-border region in the process of implementing the Strategy.

Risk 2: Measure "Monitoring the applicable strategic documents, supranational regulations and regulatory framework of both countries (Romania and Bulgaria) concerning the Danube Delta navigation safety"

The Coordination Unit will organise regular monitoring of prepared and/or accepted changes to strategic documents, supranational regulations and national regulations. This will be done through a regular review of publicly-announced drafts of changes to the responsible institutions at EU and national level in Romania and Bulgaria. Monitoring will be carried out as well as changes to regulations and regulations published on the official websites of the responsible institutions. In addition, the JCC will also monitor changes in regional and municipal documents that are relevant to the activities carried out and the expected results of the implementation of the Strategy.

In the event of a change in the applicable regulations and/or regulatory document, through the designated responsible institutions/Authorised Experts, will carry out an expert evaluation as to whether the changes have an impact on any activity or expected outcome of the implementation of the Strategy. The evaluation will be done through the two alternatives – "IMPACT" and "NO IMPACT". The necessary actions will be taken in case of "IMPACT" assessment so that the changes are taken into account in full compliance with the regulatory requirements. In case of "NO IMPACT" assessment, no action is taken on implementation, but only updating of the database of regulations and normative documents of the individual responsible institutions that concern the implementation of the Strategy.

For the purpose of monitoring the applicable legal framework, the JCC will produce the most comprehensive list of normative documents that can influence the implementation of the Strategy.

The process of creating new strategic documents in the next EU programming period 2021-2027, which will replace the documents in force until 2020, will be followed up.

Object of monitoring will be the following set of documents (non-exhaustive list):

- Convention on the Navigation of the Danube River (the Belgrade Convention of 1948),
- Agreement between the Government of the People's Republic of Bulgaria and the Government of the Romanian People's Republic on the maintenance and improvement of the fairway in the Bulgarian-Romanian section of the Danube from 1955
- Law on Maritime Spaces, Inland Waterways and Ports of the Republic of Bulgaria.

• EU Strategy for the Danube Region

• INTERREG V-A Romania - Bulgaria /joint programming document/

• The European Agreement on Main Inland Waterways of International Importance

• Bilateral Agreement between the Governments of Romania and the People's Republic of Bulgaria, Sofia, 1955

• National Development Program: Bulgaria 2020

• Decision of the Council of Ministers No 192 of 25 March 2015 on the functioning of the National Coordination Mechanism for the implementation of the Strategy of the European Union for the Danube Region

• Danube River Basin Management Plan for the period 2016 - 2021

• River Basin Management Plan in the Danube Region 2016-2021. /adopted by Decision No 1110 /29.12.2016 of the Council of Ministers/

• Navigation data published in the River Information System in the Bulgarian part of the Danube /BULRIS/

• Data on the ports in the Bulgarian-Romanian section of the Danube river, published in the River Information System in the Bulgarian part of the Danube / BULRIS / and the State Enterprise Port Infrastructure

• National Reform Program 2017 (Romania)

• National Strategic Plan for Optimisation and Maintenance of Water in Romania 2011-2020

• National transport development strategy (Romania)

• Romania's National Sustainable Development Strategy 2013 - 2020 -2030

• Integrated Strategy for Sustainable Development of the Danube Delta - No 602/2016 (Romania)

• National Management Plan of the Romanian part of the Danube International Basin - No 859/2016 on 16 December 2016 (Romania)

• Data on Romanian Port Infrastructure Infrastructure from Lower Danube River Administration (Romania)

• Regional Development Plan for the North-West Region 2014-2020, adopted by Council of Ministers Decision No. 459/01.08.2013 (Bulgaria)

• Regional Development Plan for the North Central Region 2014-2020, adopted by Council of Ministers Decision No 461/01.08.2013 (Bulgaria)

• Regional Development Plan for the Northeast Region 2014-2020, adopted by Council of Ministers Decision No. 460/01.08.2013 (Bulgaria)

• Southeast Region Development Plan 2014-2020 (Romania)

• South Region Development Plan 2014-2020 (Romania)

• Southwest Region Development Plan 2014-2020 (Romania)

Risk 3: Measure "Developing a stakeholder strategy"

The strategy was developed through the participation of key stakeholders from both sides of the cross-border region. In this way, their interests have been taken into account and their capacity utilised in implementing the Action Plan.

When situations arise when certain countries start to exercise a reluctant influence on the implementation of the Strategy, a strategy to reduce or neutralise this impact should be developed. In the first stage of this strategy, the force field analysis tool can be used. It will then be necessary to generate and choose measures to change the overall balance of forces in the direction of increasing the supporting forces.

Risk 4: Measure "Alternative funding sources"

In the event of a reduction in funding situation, action should be taken in two directions. First of all, the action plan should be re-examined and new measures prioritised. At this stage, it is necessary to review the budget of each measure and, if possible, to select measures that lead to similar results, but with less financial means. If necessary, the implementation of some measures may be left for later implementation.

Second, the financial program should be reviewed for opportunities to attract alternative funding - through financial instruments, public-private partnerships, use of other public sources and loans.

In this way, the action plan can be updated to match the new external conditions.

6.4. Measures to include the responsible authorities

Successful implementation of the Joint Strategy to Improve Navigation Safety in the Lower Danube for the period 2019-2025 includes activities that involve interinstitutional cooperation between different institutions at local, regional, national level in each of the two neighbouring countries, Romania and Bulgaria. These institutions have their specific place and role in the integrated implementation of the strategy document.

In this respect, the coordination of the implementation of the Lower Danube Navigation Safety Strategy should be coordinated by a special joint inter-institutional body with the participation of representatives of the cross-border region.

Good partnership relations between the institutions on both sides of the border established by the Agreement between the Government of the People's Republic of Bulgaria and the Government of the Romanian People's Republic on the maintenance and improvement of the fairway in the Bulgarian-Romanian section of the Danube from 1955, the EU Strategy for the Danube region, as well as realised projects funded by EU funds will contribute significantly to the realisation of this coordination.

The involvement of the responsible authorities in the implementation of the Lower Danube Navigation Safety Strategy can be implemented by applying the following measures:

Measure 1: Creation of a single coordination mechanism for the management of the implementation of the Strategy, through:

- Establishment of a Joint Coordination Unit (JCC) with representatives of the responsible institutions implementing the Strategy from both countries;
- defining the mission, structure and basic functions of the SAC
- determination of the technology of work, incl. holding joint meetings;
- appointment of National Coordinators from Romania and Bulgaria

Time horizon: November 2018.

Measure 2: Institutionalisation of the participation of authorised representatives of the responsible institutions in the Joint Coordination Unit and the activities related to the implementation of the Strategy.

Time horizon: November 2018.

Measure 3: Implementation of monitoring and evaluation of the commitments of the responsible institutions to implement the Strategy and the results achieved.

Time horizon:

Performance monitoring - once a year until the end of 2025

Evaluation of results - annually - for the immediate results; follow - up - May 2026.

6.5. Measures for optimisation of waterways in the cross-border area

The optimisation of the waterways to increase the economic attractiveness of the transport of goods and passengers on the Lower Danube can be achieved through the implementation of the following measures:

Measure 1: Constantly maintaining the depth and width of the fairway and adjusting the low water by hydraulic structures and dredging to ensure continuity and sustainable conditions for sailing along the Lower Danube.

Measure 2: Constant monitoring of bottlenecks and maintenance of Radius of Curve.

Measure 3: Implementation of monitoring and implementation of systematic preventive actions on the formation of ice water in the waterway.

Measure 4: Planning, upgrading and maintenance of the necessary port and accompanying infrastructure.

Measure 5: Training staff to work with new technologies.

Measure 6: Development and implementation of joint projects to finance the modernisation of the waterway maintenance activities implemented in the cross-border area.

6.6. Performance monitoring and evaluation mechanism

An important step in the implementation of the Strategy for Improving Navigational Safety in the Lower Danube is to perform periodic monitoring and evaluation of the progress

achieved in the implementation of the set objectives and to take corrective and preventive measures if necessary.

Responsible for this are the state public institutions on both sides that have to perform effective monitoring and ensure publicity and transparency of the results achieved in the implementation of the strategic document.

Responsible authorities are involved in monitoring, control and evaluation in all phases of preparation, implementation, storage, and dissemination of the activities and results of the implementation of the Strategy.

The activities for monitoring an evaluation of the Strategy for the period 2019-2025 are among the responsibilities of the proposed Joint Coordination Unit (JCC) and should aim at the systematic and continuous collection, analysis and use of information for the purpose of management control, identification and taking corrective action in implementing the Action Plan of the Strategy. The implementation of a monitoring and evaluation system for the Strategy for the period 2019-2025 and its implementation ensure transparency and efficiency in the implementation of the document in a dynamic context.

To track progress on individual operational objectives and investment priorities / activities, it is important to take into account the changes in the indicators presented below. Three types of indicators are used: Performance, Result and Impact. Result indicators represent the direct and immediate effects generated by the implementation of individual activities. They are tied to the priorities and objectives of the strategy document. Performance indicators measure intermediate results as compared to initial ones.

On the other hand, the impact indicators concern the achievement of the strategic objectives and evaluate the overall effectiveness of the strategy by 2025.

The system of indicators to track progress on strategy implementation is presented in the following table.

Table 15. A system of indicators for implementation of the Action Plan

Strategic goals and operational objectives, investment priorities/activities	Performance indicators	Result indicators	Impact indicators
Strategic goal 1 : Ensuring safe navigation in the Romania-Bulgaria cross-border region with rising volumes of transported goods and passengers			Providing opportunities for safe year-round traffic in the cross-border region
Investment priority 1.1: Enhancement of the navigational safety of Danube river shipping by investing in equipment			
Operational objective 1.1.1. Improvement of the state and passability of the waterway			
1.1.1.1. Monitoring of the waterway - investments in vessels for monitoring the parameters of the waterway (echolocation and other), automatic measuring stations, signs and training of the staff to work with them	Number and type of the purchased equipment Number of trained staff Number of implemented projects Amount of invested funds	Providing precise and timely information for navigation management on the Danube River	
1.1.1.2. Investments in supporting facilities (multi-purpose dredgers, barges, pontoons, maneuvering ships, pipes, navigation signs, shore lights, etc.) - providing financing, purchasing and using	Number and type of purchased facilities Number of implemented projects Amount of invested funds	Providing year-round transport traffic along the river	
Investment priority 1.2: Waterway information provision			
Operational objective 1.2.1. Improvement and development of navigation river information system			
1.2.1.1. Completing the development and deployment of RIS base modules	Number of implemented base modules Amount of absorbed funds	Fully completed RIS, which provides river navigation information and communication	
1.2.1.2. Planning and development of new RIS modules	Number of implemented new modules Amount of absorbed funds	RIS, which is corresponding to the contemporary technological development	
1.2.1.3. Full integration and permanent exchange of data with other RISs that provide information on shipping across the Danube	Achieved level of integration Amount of absorbed funds	Achieved communication between RIS of the countries on the Danube River	
1.2.1.4. Continuous development and provision of convenient user interface to RIS	Level of user satisfaction from the RIS interface Amount of absorbed funds	Interface, which facilitates information analysis and decision making	
Strategic goal 2: Enhancing the capacity of the institutions responsible for navigation safety on both sides of the Danube River in Romania and Bulgaria and developing cross-border cooperation with all stakeholders			The institutions responsible for navigation are competent, motivated and cooperate with each other in navigation management
Investment priority 2.1: Human capital development			
Operational objective 2.1.1. Staff training and development			
2.1.1.1. Providing ongoing training, improvement and staff development	Number of trained staff Number of implemented projects Amount of absorbed funds	Availability of well-trained and motivated staff for navigation management on the Lower Danube	
2.1.1.2. Developing capabilities for analysis and management of navigation risk	Number of conducted seminars on analysis and navigation risk management Presence of implemented analysis and navigation risk management systems	Improved navigation risk management	
Investment priority 2.2: Co-ordination, co-operation and participation in joint projects			
Operational objective 2.2.1. Development of the authorities responsible for navigation in the cross-border region			
2.2.1.1. Investments in the material base for ensuring the operational activity	Creating modern and high tech material base for implementation of the operational activity		
2.2.1.2. Encouraging co-operation and participation in professional networks	Number of participation in networks Number of developed projects in the networks with Bulgarian and Romanian participation Amount of attracted external resources	Participation in professional networks, which improve the navigation management	
2.2.1.3. Improving the capacity for participation and implementation of international and national projects	Number of conducted trainings on project preparation and project management Number of trained staff Number of implemented projects Amount of attracted funds Amount of absorbed funds	Developed and successfully implemented international and national projects for development and enhancement of the navigation service safety	
2.2.1.4. Improving the coordination, collection and exchange of information with ports and river port operators	Volume of the information exchanged with ports and operators	Improved communication and information exchange with ports and port operators	

7. Recommendations

The recommendations made are not a summary of the material developed. The task of the recommendations is to facilitate the implementation of the Strategy and the Action Plan. Therefore, they have a pragmatic character and are directly geared towards the management of responsible authorities and institutions.

Thus, when implementing the document, attention should be paid to the following features arising from the subject matter of the contract:

1. The Strategy and Action Plan developed shall include in the Framework Strategy Documents relevant to the Lower Danube Navigation Safety but shall not override or duplicate them. They are fully focused on the issues of navigation safety. Any change to the other strategic documents to be expected in the next programming period 2021-2017 in the EU should be reflected in the Strategy and the Action Plan.
2. The strategy and the action plan are intended to be implemented by authorities and institutions from the Bulgarian and Romanian sides. For this purpose, a Joint Co-ordination Unit is set up. As a basic principle in the implementation of the Strategy, therefore, the partnership between the participating countries must be drawn. Only with joint efforts and coordinated actions will it be possible to improve navigation safety on the Lower Danube. The river is one, the waterway is one, but its safety must be taken care of by two sides and different institutions on both sides of the river.
3. The action plan is specifically written but at the same time allows for flexibility and specification according to the chosen technical solutions and market situation at the time of purchase of the equipment or the provision of the service. In this way, conditions have been created to meet the needs of users and apply the principle of optimal spending of resources.
4. The strategy and action plan cover a long period of 2019 to 2025, during which serious changes in the external environment of the two countries will occur. It is therefore necessary to make more serious changes to it so that it appropriately reflects the new moments and the document is adequate to the environment and the signals it broadcasts.

5. A system for monitoring and reporting on the implementation of the Strategy and Action Plan has been developed. It is desirable that the performance of this activity be designed alongside the start of implementation of the Strategy so as to feed the managing authorities with timely and accurate information on what and how it happens in the realisation of all activities. This will enable corrective impacts to be achieved and ensure that the intended objectives are achieved smoothly.

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Annex 1. Summary matrix of the Action Plan

Strategic goals and operational objectives, investment priorities/activities	Responsible institution and partners	Deadline	Financial resources, mln euro	Expected results	Performance indicators	Result indicators	Impact indicators
Strategic goal 1: Ensuring safe navigation in the Romania-Bulgaria cross-border region with rising volumes of transported goods and passengers							Providing opportunities for safe year-round traffic in the cross-border region
Investment priority 1.1: Enhancement of the navigational safety of Danube river shipping by investing in equipment							
Operational objective 1.1.1. Improvement of the state and passability of the waterway							
1.1.1.1. Monitoring of the waterway - investments in vessels for monitoring the parameters of the waterway (echolocation and other), automatic measuring stations, signs and training of the staff to work with them	EAEMD/CN APDF SA Giurgiu/CN APDM SA Galați	**2019 - December 2022**	**18**	Number of new ships for waterway monitoring Purchased and installed new automatic measuring stations Staff, trained to work with the new equipment	Number and type of the purchased equipment Number of trained staff Number of implemented projects Amount of invested funds	Providing precise and timely information for navigation management on the Danube River	
1.1.1.2. Investments in supporting facilities (multi-purpose dredgers, barges, pontoons, maneuvering ships, pipes, navigation signs, shore lights, etc.) - providing financing, purchasing and using	EAEMD/CN APDF SA Giurgiu/CN APDM SA Galați	**2019 - December 2022**	**20**	Purchased new dredging vessels Purchased new barges Purchased new pontoons, pipes, etc. Purchased and installed new navigation signs	Number and type of purchased facilities Number of implemented projects Amount of invested funds	Providing year-round transport traffic along the river	
Investment priority 1.2: Waterway information provision							
Operational objective 1.2.1. Improvement and development of navigation river information system							
1.2.1.1. Completing the development and deployment of RIS base modules	SEPI/Romanian Naval Authority	**2019 - December 2020**	**1**	Developed and implemented all RIS base modules in both countries	Number of implemented base modules Amount of absorbed funds	Fully completed RIS, which provides river navigation information and communication	
1.2.1.2. Planning and development of new RIS modules	SEPI/Romanian Naval Authority	**2021- December 2024**	**1,5**	Developed new functional RIS modules	Number of implemented base modules Amount of absorbed funds	RIS, which is corresponding to the contemporary technological development	
1.2.1.3. Full integration and permanent exchange of data with other RISs that provide information on shipping across the Danube	SEPI/Romanian Naval Authority	**2019 - December 2025**	**0,5**	Fully intagrated data bases	Achieved level of integration Amount of absorbed funds	Achieved communication between RIS of the countries on the Danube River	
1.2.1.4. Continuous development and provision of convenient user interface to RIS	SEPI/Romanian Naval Authority	**2019 - December 2025**	**1**	User friendly RIS interface	Level of user satisfaction from the RIS interface Amount of absorbed funds	Interface, which facilitates information analysis and decision making	
Strategic goal 2: Enhancing the capacity of the institutions responsible for navigation safety on both sides of the Danube River in Romania and Bulgaria and developing cross-border cooperation with all stakeholders							The institutions responsible for navigation are competent, motivated and cooperate with each other in navigation management
Investment priority 2.1: Human capital development							
Operational objective 2.1.1. Staff training and development							
2.1.1.1. Providing ongoing training, improvement and staff development	EAEMD/CN APDF SA Giurgiu/CN APDM SA Galați	**2019 -December 2025**	**0.35**	Conducted staff training for developing new skills and acquiring new knowledge	Number of trained staff Number of implemented projects Amount of absorbed funds	Availability of well-trained and motivated staff for navigation management on the Lower Danube	
2.1.1.2. Developing capabilities for analysis and management of navigation risk	EAEMD/CN APDF SA Giurgiu/CN APDM SA Galați	**2019 -December 2020**	**0.2**	Created and used navigation risk management system	Number of conducted seminars on analysis and navigation risk management Presence of implemented analysis and navigation risk management systems	Improved navigation risk management	
Investment priority 2.2: Co-ordination, co-operation and participation in joint projects							
Operational objective 2.2.1. Development of the authorities responsible for navigation in the cross-border region							
2.2.1.1. Investments in the material base for ensuring the operational activity	EAEMD/CN APDF SA Giurgiu/CN APDM SA Galați	**2019 -December 2023**	**0,5**	Number and type of purchased equipment Number of implemented projects Amount of invested funds	Creating modern and high tech material base for the implementation of tho operational activity		
2.2.1.2. Encouraging co-operation and participation in professional networks	EAEMD/CN APDF SA Giurgiu/CN APDM SA Galați/SEPI/Romanian Naval Authority	**2019-December 2025**	**0.1**	Integration of Bulgarian and Romanian institutions in European networks	Number of participations in networks Number of developed projects in the networks with Bulgarian and Romanian participation Amount of attracted external resources	Participation in professional networks, which improves the navigation management	
2.2.1.3. Improving the capacity for participation and implementation of international and national projects	Ruse Municipality/Giurgiu Municipality/ EAEMD/CN APDF SA Giurgiu/CN APDM SA Galați/SEPI/ Romanian Naval Authority	**2019 - December 2021**	**0.1**	Available capacity for preparation of successful project proposals and project management	Number of conducted trainings on project preparation and project management Number of trained staff Number of implemented projects Amount of attracted funds Amount of absorbed funds	Developed and successfully implemented international and national projects for development and enhancement of the navigation service safety	
2.2.1.4. Improving the coordination, collection and exchange of information with ports and river port operators	EAEMD/CN APDF SA Giurgiu/CN APDM SA	**2019 - December 2025**	**0.2**	Improved coordination and communication with ports and port operators	Volume of the information exchanged with ports and operators	Improved communication and information exchange with ports and port operators	