RIVER AND SEA TRANSPORTS IN ROMANIA IN THE EUROPEAN UNION STRATEGY FOR THE DANUBE REGION PERSPECTIVE

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Key-words: Danube River, Black Sea, Danube-Main-Rhine Canal, Geopolitical position, Romania.

River and sea transports in Romania in the European Union Strategy for the Danube region perspective. Romania's geographical position links it essentially to the Black Sea, which thus becomes the main gateway to Europe (through the ports of Constanța, Constanța Sud – Agigea and the Danube – Black Sea Canal, unfortunately still not exploited at its full strategic capacity) and the main Caspian-Pontic interface with the West. Situated in the central zone of the geopolitical system of intra-continental seas, Romania can become the "Eastern key" to NATO and EU relationships with Russia, Asia and the Arab states. In this period of searches determined by the globalisation process, Romania possesses the necessary infrastructure to take over, store and transport the energy resources, it being a real partner in the alliances it belongs to. A founder, together with Bulgaria, Georgia, Russia, Turkey and Ukraine, of the Black Sea Economic Community (BSEC), Romania has been actively involved in strengthening trade relations, public and telecomunication works and environmental protection (especially of the Danube Delta, tensioning its relations with Ukraine), stimulating cultural exchanges and granting political support to the Republic of Moldova, Ukraine, Georgia, Azerbaijan and Turkey on the world stage.

THE EUROPEAN UNION STRATEGY FOR THE DANUBE REGION

The European Union Danube Region strategy represents a vast regional co-operation project signed by the representatives of 14 states and adopted by the Council of Europe on the 24th of June, 2011 after lengthy public debates and political, economic, administrative and scientific meetings (Bălteanu 2012, p. 8). The document includes the official communique and action plan of 11 priority domains, grouped by four axes: environmental protection, prosperity-building in the region and improvement of governance, also stipulating concrete actions for the sustainable development of each domain.

Transports fall into the "connectivity" axis, measures referring to traffic on the Danube and its navigable tributaries, alternative energy resources and development of tourism. The strategy starts from the reality that, for all the great importance of the Danube – Black Sea fluvio-maritime axis in enlarging economic relations between the EU and the Central Asian states, transport on the Danube is insufficiently developed. The idea is to have multi-modal terminals built in the Danubian ports until 2020, in order to better connect river transport to road-and-rail facilities (European Comission, 2012-b).

GEOPOLITICAL CONTEXT

Romania's geostrategic importance at the eastern end of the Danube-Main-Rhine Canal is due also to Constanța Port, the largest of the Black Sea Basin and of the Danube riverine harbours. It links the Danube-Main-Rhine axis with the ports at the Black Sea, the Eastern Mediterranean and the Near East and hence with any of the world's harbours. That carriers are interested in Romania's geostrategic position is proven also by two of the major Pan-European transport corridors which cross its territory from west to east (Dresden-Prague-Bratislava-Vienna-Budapest-Bucharest-Constanța-Thessaloniki-

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Istanbul) and from north to south (Helsinki-Moscow-Odessa-Chişinău-Bucharest-Dimitrovgrad-Alexandropolis) (Neguț *et al.* 2004) (Table 1).

Table 1

The Danube River in the national space

Ripparian State	Length of the river (river kilometres)	Number of bridges	Bridge density (bridge / river kilometre)
Germany	687	89	7.7
Austria	351	46	7.6
Slovakia	172	8	21.5
Hungary	417	20	20.9
Croatia	138	4	34.5
Serbia	450	10	45
Romania	1 020	6	170
Bulgaria	472	2	236
Republic of Moldova	0.6	0	0
Ukraine	54	0	0

Source: Rechnitzer, J. (edt.) (2009), p. 17.

An other element defining Romania's geographical position is the Black Sea which opens up navigable routes to the whole Planetary Ocean. The fluvial link between the North Sea (Rotterdam) and the Black Sea (Constanța), enlarged the geostrategic importance of the latter port beyond a strictly regional cooperation framework.

The development of Constanța Port has been favoured by its geostrategic function as relay among the European markets, on the one hand, and of South-East Asian and the Black Sea markets, on the other. Besides, this harbour is connected to a many-sided transport system: maritime, fluvial, road-and-railway and air. The Danube-Black Sea Canal is made through the southern area of the harbour, which enables direct trans-shipment of the cargo from maritime to river vessels (Fourcher *et al.* 1999).

The hinterland of this port includes the Black Sea Basin and the Danube River. Being located at one terminal of the Rhin-Main-Danube transcontinental axis (Fig. 1), it provides direct access to a shorter, basically cheaper, route to Central Europe. Its infrastructure and water height along the dock enables all types of ship crossing the Suez Canal and the Black Sea – Mediterranean straits to anchor in this harbour. Besides, it enjoys some strategic facilities such as a free zone regime and ship-building and repair works.

As the USSR fell apart and Ukraine an Georgia became independent, geopolitics in the Black Sea zone was assumed by Ukraine. Turkey, the second Black Sea maritime power, which had used to direct its interests to the Aegean and the Mediterranean ports, began reafirming its role of regional power within the Balkan and the Caucasian space (Roncea *et al.* 2005). Panslavism, favoured by the independence of Azerbaijan, and by the separatist movements in Bosnia-Herzegovina and Georgia, was supported by Turkey. As a NATO-member state since 1952, and a candidate to EU accession, Turkish policy had to become a regional catalyst, in view of the conflictual situation at its borders (Kurdistan, Caucasus, Irak, the Near East and the Balkans).

Until the 1990s, maritime traffic meant largely imports and exports through the ports of reverine countries, but given the growing interest shown lately by Europe, which is the main hydrocarbon-consuming market, it is expected that the Black Sea region, beside an oil transport route inscribed in the short-and-medium term European development programmes, to be included also in EU's medium-and-long-term regional development programmes. Provided the Black Sea is viewed within a global context and included into an integrating programme, it could play an essential future role in the cohesion and stability of this area whose geopolitics is a pretty complex and conflictual one. The EU accession of Romania and Bulgaria, and prospectively of Turkey as well, on the one hand, the crises in Abkhazia and South Ossetia, and the tensional situation in Ukraine appear to be the main geopolitical data of this region.

Even though the Black Sea Basin is not a political, cultural or religious unit, it nevertheless represents a cross-roads of Euro-Asian migrations, the place where European, Asian and Arab civilisations, cultures and religions meet, also presenting hotbeds of tension in which conflits are going to evolve, e.g. the Caucasus and the Caspian Sea area, and the conflicts in Central Asia and in the Arab states do have an influence. As a malter of fact, the open conflicts manifest on the Balkan-Caucasian axis, on the Caspian-Arab fault-line, and on the Mediterranean-Arab axis have a negative bearing on the security and stability of states in the Black Sea Basin.

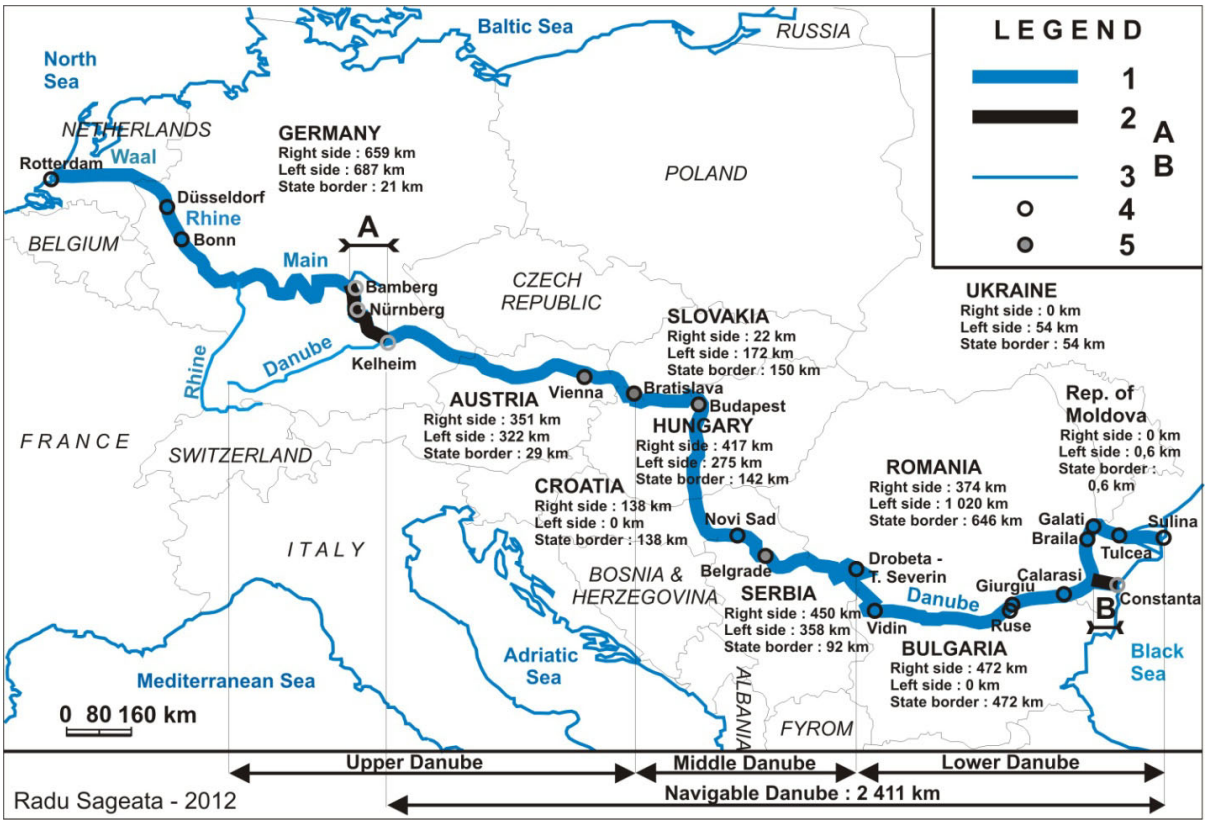

Fig. 1 – Rhine-Main-Danube transcontinental axis. 1. Navigable rivers, 2. Navigable canals: A. Danube-Main-Rhine Canal, B. Danube-Black Sea Canal, 3. Other rivers/shores, 4. Cities, 5. Capital Cities.
Source: Rechnitzer, J. (edt.) (2009), p. 11.

For all the efforts made by the Romanian side after 1989, the Black Sea has not regained its status of regional geopolitical power, although the dissolution of Soviet Russia kindled the hope of new prospects for international relations to develop in this strategic zone. Despite various international organisations being established over nearly all of the last two decades, Russian intervention, Ukrainian and Turkish interests and the lack of interest on the part of international alliances brought positive evolutions to a halt. As the oil crisis got momentum, a crisis actually triggered by Islamic revolutions, the Black Sea was found to have an exceptional geostrategic potential, so far unexploited. A shift in the economic-military policy of Western states opened up new vistas for a fresh approach to the Black Sea, an area lying at the cross-roads of some vital axes (Pontic-Baltic, Pontic-Caspian, Caspian-Arab, Mediterranean-Arab and Balkan-Caspian) for international alliances, part an parcel of the geopolitical system of intra-continental European seas.

RIVER TRANSPORT IN ROMANIA

The Danube River in Romania (1,075 km) (Fig. 2) is navigable throughout for two draught of ship categories of vessels: up to 7 m sea ships downstream of Brăila port-town and up to 2 m river barges upstream of Brăila. As a result, there are also two categories of Danube ports: fluvial-maritime and fluvial.

Romania's biggest river and sea port is *Galați*, situated at the point of convergence between the Danube with the Siret and Prut rivers, in the city's industrial area and in the proximity of the dockyard. The port extends over 864,131 m^2 and has fifty-six berths in two port basins: Docuri and Bazinul Nou. In addition, a mineral port with sixteen berths, allowing for 25,000 tdw sea vessels and up to 3,000 tdw river barges to moor, lies close to Mittal Steel SA Works.

Another three harbours are: *Brăila* (398,630.13 m^2 and 25 berths) specialised in reshipping goods from sea vessels to river barges; *Tulcea* (82,762 m^2 and 41 berths) with three distinct sectors: industrial, commercial and ocean fishing, and *Sulina*, situated at the mouth of the Sulina Arm, is a second-in-importance harbour. Galați, Brăila and Tulcea have multiple connections with the national rail-and-road network, dockyards, customs points and free zones.

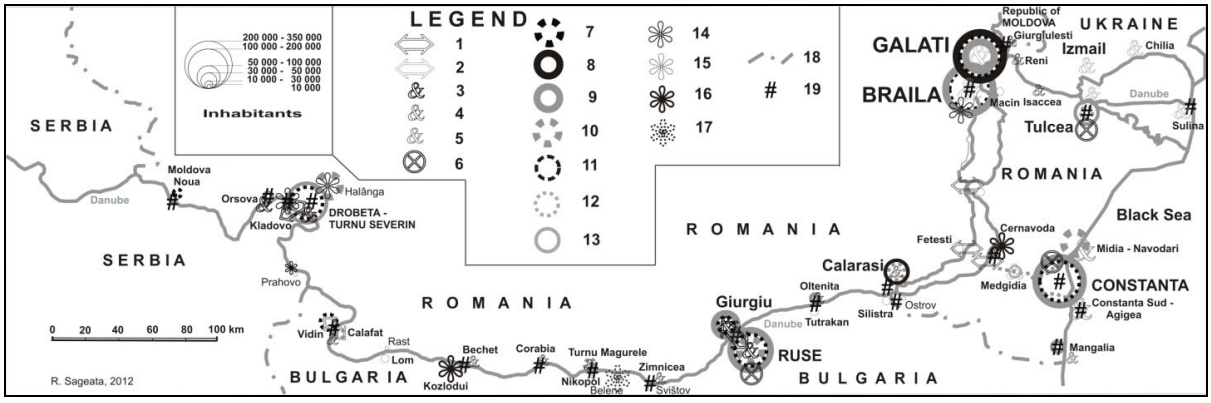

Fig. 2 – The urban system in the Lower Sector of the Danube. 1, Bridge; 2, Bridge under construction; 3, River harbour; 4, River-maritime harbour; 5, Maritime harbour; 6, Airport; 7, Copper ore extraction centre; 8, Iron-and-steel estates; 9, Ship-yards; 10, Chemical and petro-chemical industry; 11, Building-materials industry; 12, Paper and cellulose industry; 13, Cement factory; 14, Thermal-power stations; 15, Water-power stations; 16, Nuclear-electric station; 17, Nuclear-electric station under construction; 18, Terrestrial borders; 19, Cross-border connections.

The financial-economic crisis that hit the Romanian economy in the latter half of 2008, and the reduced share of river freight transport in the overall transport diminished considerably traffic through the marine Danube harbours, the volume of goods in 2009 was half that in 2007, and less than one-fourth the number of ships that had used to anchor there over the same reference period were still being registered (Table 2).

There are ten ports for traffic on the fluvial Danube, the biggest being *Giurgiu* situated on the left bank of the river (between km 493+800 and km 490). This harbour is divided in four distinct areas: *Ramadan* commercial area; *Cioroiu* oil area; *Bazinul Plantelor* commercial area and *Veriga* basin used largely for ship-building and repair. Second in line comes *Cernavodă* Port, built between 1887 and 1905. It has a fluvial area alongside the Danube, a commercial area with six berths, a 9-hectare platform and a waiting area, on the left bank of the Danube – Black Sea Canal with waiting wharfs or trains of barges and passenger wharfs.

Downstream of Giurgiu lie the ports of *Călăraşi* (with an industrial harbour, specialised in metallurgical items and a commercial harbour situated in the proximity of the homonymous town) and Oltenița for both cargo and passengers. On the upper course of the Romanian sector of the Danube are finds *Orşova* (capacity: 1,200,000 tdw/year), *Drobeta-Turnu Severin* (600,000 tdw/year), *Calafat*, *Bechet*, *Corabia* and *Moldova Veche.*

Table 2

Traffic through Romania's river and sea ports (1998-2010)

Year	River ports traffic		Sea ports traffic		River & Sea ports traffic	
	Volume of freight (thou. t)	No. of vessels	Volume of freight (thou. t)	No. of vessels	Volume of freight (thou. t)	No. of vessels
1991	7,407	4,214	1,397	449	8,804	4,663
1995	9,216	5,046	1,453	602	10,670	5,648
2000	9,743	5,940	1,505	613	11,248	6,553
2005	13,686	7,116	1,129	564	14,811	7,680
2008	10,635	6,627	2,086	700	12,721	7,327
2009	5,543	3,729	2,241	624	7,784	4,353
2010	9,059	5,194	2,659	711	11,718	5,905
2011	8,122	5,071	2,426	717	10,548	7,788

Source: http://www.romanian-ports.ro/html/trafic-portuar.html, accessed on Nov. 7, 2012. Mss. Data – Missing Data.

The Danube-Black Sea Canal (64.4 km) (Fig. 3) was commissioned in 1984 and four years later the Danube-Main-Rhin Canal (171 km) (Fig. 4) was opened to navigation linking the Black Sea Basin to the North Atlantic ports.

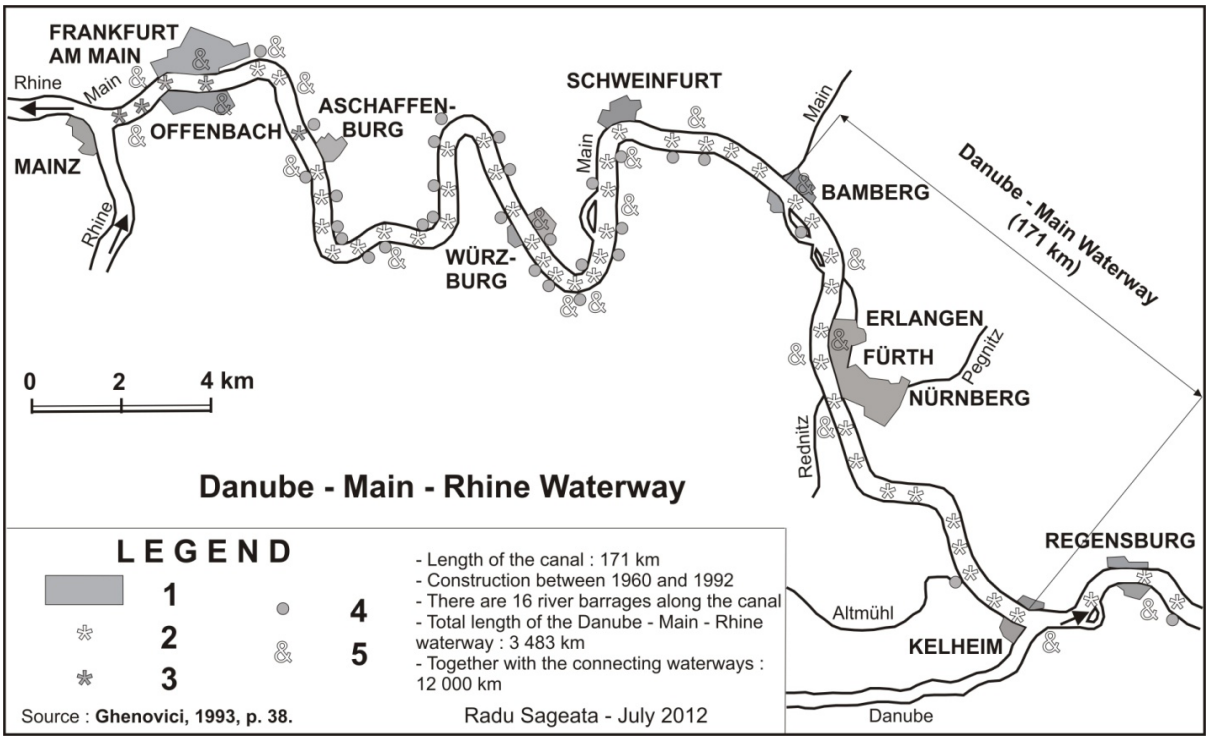

Fig. 3 – Danube-Main-Rhin waterway. 1. Cities, 2. Locks, 3. Double locks, 4. Water-power stations, 5. Ports. Source: Ghenovici 1993, p. 38.

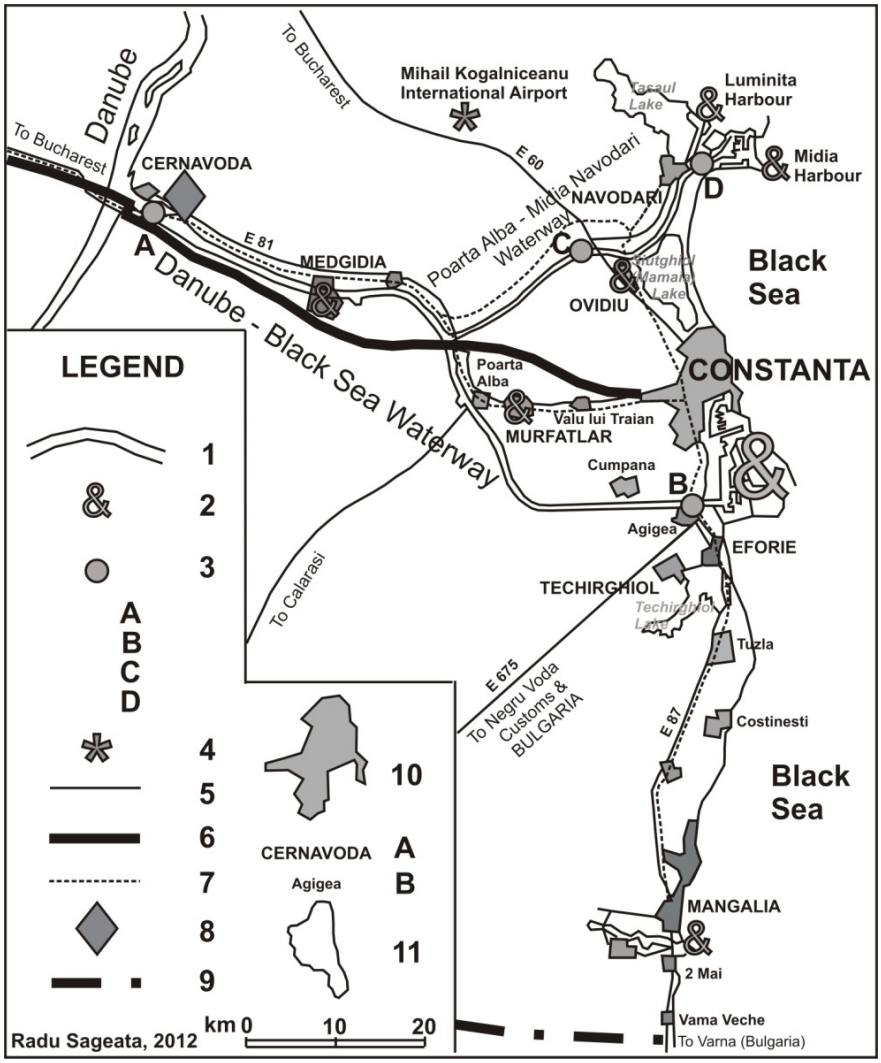

Fig. 4 – Danube-Black Sea waterway. 1. Waterways, 2. Ports, 3. Locks: A. Cernavodă, B. Agigea, C. Ovidiu, D. Midia, 4. Airport, 5. Highway, 6. Motorway, 7. Railway, 8. Nuclear-electric station, 9. State border, 10. Settlements: A. Urban settlements, B. Rural settlements, 11. Lakes. Source: Sobaru *et al.* 1998.

Thus, the opening of a second navigable thoroughfare shortened the Near East (Port Said) to Rotterdam route from 11 days (through the Mediterranean and the Gibraltar, 3,375 miles, by skirting the Black Sea) to only 3 days and 8 hours (on the Dardanelle-Bosporus-Danube-Main-Rhine route) (Ghenovici 1993, p. 39).

Similarly, connecting the Danube-Black Sea Canal to Europe's inland network of canals reduced the distance between Rotterdam and Constanța from 6,000 km on the old maritime line to 3,000 km, again from 11 days to 3 days and 8 hours. In this way, the importance of the Danube (2,588 km) has considerably increased. Moreover, 34 of its 120 tributaries are accessible to Europe's river traffic.

The geostrategic importance of the two canals as transport routes was confirmed at the Pan-European Transport Conference, Helsinki 1997, when the Danube-Black Sea Canal was put on the Transeuropean transport list and Corridor 7 (North Sea – Black Sea) was extended to Constanța. Behind that decision lay ecological considerations (the fragility of the Danube Delta natural ecosystem), the risks posed to navigation security by the Sulina Canal (the grounding of a vessel imposing sailing restrictions), geopolitical reasons (connected with Ukraine's intention to continue with the building of

the Bystroe Canal in the North of the Danube Delta) and more recently the measures taken to contain the spread of bird flue (leading to restrictions of circulation).

Navigation on the Danube is endangered in winter, when the water freezes once every 2-3 years for a period of some 30-40 days, and floating ice blocks the channel when the ice thaws. Besides, the deposition of alluvia at the river mouths forms kind of a "bar" due to the sudden decantation of suspented sediment load at the contact with the salt sea water. In order to maintain the depth required by sea ships, the Sulina mouth is constantly being draged. To deal with the situation, the Sulina Arm was canalised and extended by another 12 kilometres. In the past, rapids in the Iron Gate zone and the rocks appearing in the channel at shallow waters, posed navigation problems, but the construction of the "Iron Gate" Hydropower and Navigation System (1971), fitted with a double gate lock, resolved the situation.

The economic and geostrategic potential of Bucharest and Timişoara, planned to become port-cities, has made the European Union designate them as continental development poles to be connected to the Pan-European river transport system. At the same time, building works at the Bucharest-Danube Canal, abandoned after 1990, will be resumed, and 44 km of Timişoara's Bega Canal are scheduled to become a navigable river route (along the Rhine-Main-Danube Canal) in the direction of Rotterdam and of Baziaş-Sulina-Constanța (Sobaru *et al.* 1998).

SEA TRANSPORT

As the main consumer of hydrocarbons, Europe has lately become interested in integrating oil transport routes into its short-and-medium-term development programmes and besides, to include the whole of the Black Sea region into medium-and-long-term programmes. Viewed within a global integrating perspective, the Black Sea might play a major role in the future cohesion and stability of a rather complex geopolitical area.

Ever since the 7th decade, Romania has endeavoured to enlarge the geopolitical area of its external trade exchanges, developing *Constanța* harbour (Fig. 5) as the main gateway of international maritime traffic. At the same time, also a port at the Danube – Black Sea Canal, Constanța can become a transit destination between remoter and economically complementary geographical regions.

The complex post-war works, especially those of 1964, extended the port area to the south, which eventually became three times larger than before, as did the length of its wharfs. In the years 1970-1980 extensions continued along the coast to the north and south, when two more harbours were being built: Midia-Năvodari specialised in shipping crude-oil and oil products, and Constanța Sud – Agigea, the terminus of the Danube – Black Sea Canal. The former harbour, built exclusively for the homonymous refinery, is also a river port being connected (through the 26.6 km long Poarta Albă – Midia Năvodari Canal) to the Danube – Black Sea Canal). It is also a point of convergence of the submarine oil pipe coming from the oil drillers on the Black Sea Continental Shelf.

These extension and modernisation works increased Constanța harbour's traffic capacity from 60 to 85 million tons/year, establishing it as the biggest Black Sea port and the fourth in Europe after Rotterdam, Antwerpen and Marseille. Port installations and equipments cover 3,222 hectares (3,926 hectares after extension), out of which 1,313 ha on land and 2,613 ha on water. The two sea walls situated north and south shelter the harbour, conferring safety and optimal conditions for the development of port activities.

At present, the north and the south sea walls are 8,344 m and 5,560 m long, respectively. Constanța Port has 156 births, of which 140 are operational. The total length of the wharfs is 29.83 km, depths varying between 7 m and 22,5 m, allowing for oil tanks of 165,000 tdw and cargo ships of up to 220,000 tdw to anchor here (Table 3).

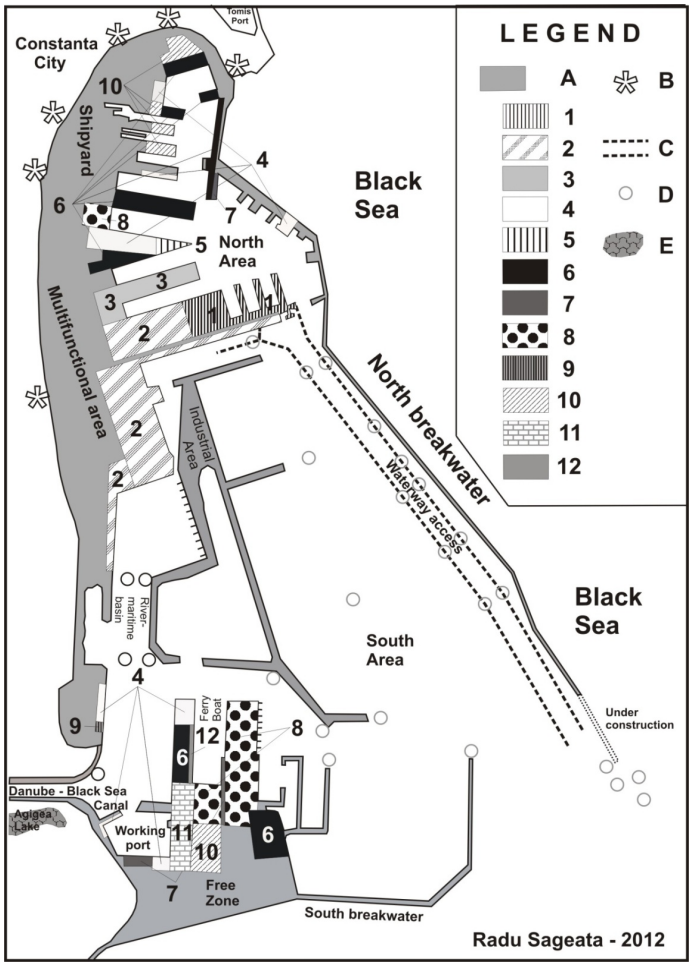

Fig. 5 – Constanța Port facilities. A. Port terminals: 1. Crude oil &oil products, 2. Ferrous & non ferrous ores, derivates, 3. Chemical products, 4. Cereals, 5. Cement, 6. General cargo, 7. Passengers, 8. Containers, 9. Bitumen, 10. RO-RO, 11. Warehouse, 12. Cars terminal; B. Acces Gates; C. Navigable channel; D. Seamarks; E. Lakes. Source: Sobaru *et al.,* 1998.

Table 3

Constanța Port. Main technical characteristics

Technical characteristics	UM	Constanța North	Constanța South		Constanța Port (Total)	
			Present	After extension	Present	After extension
Surface	ha	722	2,500	3,204	3,222	3,926
Length of sea walls	km	6.77	11.45		18.22	
Length of wharfs	km	13.4	16.43	50	29.83	63.4
No. berths	pcs	78	78	200	156	278
Depth of basins	m	7.2 – 14.5	7 – 22.5	7 – 22.5	7 – 22.5	7 – 22.5
Traffic capacity/year	mil. t.	60	180		240	
Ships capacity (max.)	thou. t	80	250		250	

Source: Sobaru *et al*. 1998, p. 148.

Constanța dockyard has the capacity to build and repair ships of up to 200,000 tdw, and the free zone can discharge the whole range of specific activities. For all that, traffic is far below capacity, basically not even half potential values being reached. The structure of goods is dominated by cereals (about ¼ of the total), crude and oil products, iron ores and derived products, general commodities, non-ferrous ores, fossil fuels and chemical products (Table 4).

Table 4

The structure and evolution of freight through Constanța Port (2004–2010)

Commodity	Y e a r (thou. tons)						
	2004	2005	2006	2007	2008	2009	2010
Cereals	3,884	6,010	7,171	4,258	6,670	10,418.67	12,061.97
Potatoes, other vegetables and fruit	156	169	180	179	132	81.3	71.11
Livestock, sugar beet	34	20	40	75	20	10.9	35.1
Wood and raft	1,101	1,012	906.36	971	836	838.4	961.9
Textile items and fibres, derivatives	14	0	6.19	8	14	18.7	–
Food products, fodders	888	551	537.58	302	432	303	368.9
Oleaginous seeds, oleaginous fruit, fats	446	454	877.07	896	1,131	1,567	1,759.9
Solid fossil fuels	2,424	3,472	3,413.82	4,798	7,109	2,732	2,988.6
Crude oil	7,185	8,683	8,567.46	8,543	8,814	6,919	5,501.1
Oil products	4,558	5,295	4,978.2	3,772	4,135	3,954	4,107.7
Iron ores, derivatives	12,534	12 626	8,670	10 794	11,379	3,843	5,354.1
Metal products	2,352	4,163	2,804.1	3,694	2,133	1,525	1,471.6
Cement, burnt lime, prefabs	2,263	2,302	1,605.6	1,134	953	321	280.5
Quarry minerals	478	651	610.51	674	505	304	221.3
Natural and chemical fertilisers	1,854	2,311	2,093.17	1,864	1,896	1,344	1,766
Chemical products derived from carbons and tar	212	253	410.14	372	367	244	1,543.5
Other chemicals	1,748	1,355	1,039	1,561	1,291	828	186.5
Cellulose and waste paper	0	5	9.2	4,8	0	0.5	4.1
Equipments, machines, transport items	53	92	88.31	137	179	244	265.9
Metal-made items	861	12	9	6	6	0.5	20.1
Glass, glassware, pottery items	3	0	5.3	22	47	60	75.2
Leather, garments	3	1	6	8	14	19	73.5
Other products	4,242	7,753	9,979	12,723	13,086	5,904	5,884.9
TOTAL	**50,433**	**60,632**	**57,131**	**57,783**	**61,837**	**42,014**	**47,563.9**

Source: Constanța Port Administrație. http://www.portof constanta.com/apmc/portal, accessed on August 30, 2012.

The fundamental political mutations experienced by the Black Sea riparian countries after 1990 have led to radical changes in the volume and structure of maritime traffic in the area; with the exception of the Turkish ports, all the others, and more especially those located on the western coast of the basin, were in some cases faced suddenly with massive decreases of the traffic volume. From 62 million tons passing through Constanța in 1988–1989, values dropped to 42.4, 28.4 and 26.8 million tons in 1990, 1991 and 1992, respectively, with a slight increase in 1995 (30 mill. tons/year). The financial-economic crisis affected also the traffic of goods in Constanța harbour, the 2009 volume being by 30% lower than the year before.

Beside difficulties in volume and structure due to economic restructuring processes in the reverine countries, radical changes also occurred in what concerns the geographical area and the direction of transported goods. So, traffic through the ex-Soviet harbours decreased in favour of the southern and eastern Black Sea ports.

The level at which the Black Sea port capacities are used at present is distinctively different. Some harbours (e.g. Constanța and Odessa) have excess capacities, others are in deficit (Caucasian ports).

In these conditions Constanța can become a competitive actor at the Black Sea: it has a complex transport system – maritime, fluvial, railway and international airport. Ship entry to the Danube-Black Sea Canal being placed in the south of the harbour, facilittes direct reshipping from sea vessels to barges; it has a vast hinterland which includes both the Black Sea and the Danube basins; it has the biggest and modernmost operation capacities in the region, receiving all types of vessels transiting the Suez Canal; it converges river and sea transport, and has important strategic facilities (shipyard and free-zone regime).

Works to upgrade port equipments, diversify services and integrate regional, European and global transport systems more efficiently are underway or scheduled to begin. As a result, Constanța will strengthen its position of Europe's eastern maritime gateway and principal Black Sea harbour.

Romania's second sea harbour, Mangalia, is by far less important than Constanța. It has a total operational surface of 142.19 ha (27.47 ha on land, 114,72 ha on water, 4 wharfs (2 of which are operational),

long of 540 m, maximum depth at wharf 9 m. Main products passing through: chemicals, fertilisers, bitumen, general goods.

CONCLUSIONS

Situated on the transit corridor between Western Europe and the Middle East and at the cross-roads of Europe, the Balkans and the Middle East transport poles, Romania, also a riparian country of the Black Sea and the Danube River (1,075 km) (Europe's major navigable waterway) enjoys a favourable geostrategic position.

The building of the Danube–Black Sea Canal (commissioned in 1984) and of the Rhine–Main–Danube navigable waterway (1992) have turned Romania into the terminus of the main Transeuropean water route which links the North Sea (Rotterdam) to the Black Sea (Constanța).

Roads, railways, sea and river harbours and airports connect localities to the national and international networks. The rehabilitation and modernisation of infrastructure in line with European standards is underway.

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