

MECHANISMS OF PREVENTION OF BLACK SEA ECOSYSTEMS THREATS FROM TRANSPORT

Oleg Rubel, PhD, senior researcher of Institute of Market problems and Economic-Ecological researches of NAS of Ukraine, expert of BINSa, Odessa

After the historic EU enlargement to include 10 countries of Central and Eastern Europe and the Mediterranean in 2004, Romania and Bulgaria joined the Union at the beginning of 2007. As a result of EU expansion to the Black Sea coast a new geopolitical and economic situation has been established in the region, which will in turn influence the Black Sea ecosystems. A priority role for the Black Sea is as a transit area connecting East and West, North and South. Traffic flows use seven (or more) international transport corridors passing through the Black Sea region with a total capacity of up to 1 billion tonnes of cargo per year. Currently, freight with a value of \$600 billion is transported between Europe and Asia annually. Cargo volumes between the two continents are expected to increase by 30-35% until 2010.

The European Commission Communication on "Guidelines for transport in Europe and neighbouring regions"¹ outlines an ambitious policy which aims to create an effective transport market between the EU and its neighbours and to disseminate the principles of the internal market. The Communication identifies the five most important transport axes for international trade between the Union (including the BS Region²) its neighbouring countries and beyond. It also sets out a package of measures to shorten journey times along these axes including infrastructure improvements, streamlining customs procedures and reducing administrative obstacles.

Transport (shipping, inland navigation, road transport and rail) is a key sector for cooperation in the context of the Black Sea Synergy. The EU has committed to continue actively supporting regional transport cooperation in the Black Sea with a view to improving the efficiency, safety and security of transport operations. The EU would build on the experience of all the various transport initiatives relevant to the Black Sea area³. Efforts should continue in the context of developing the transport axes between the Union and the neighboring countries and enhancing co-ordination with ongoing initiatives such as TRACECA.

At the same time, transport policy dialogue is encouraged to underpin regulatory approximation, which remains a central goal for the EU. The Commission intends to assist in identifying those actions that will help to achieve uniform and consistent application of relevant instruments and standards. Given the growing demand for fuel transport, maritime safety must also be central to the agenda. The Commission intends to support further development of short sea shipping and inland waterway infrastructures, most notably on the Danube.

Development and implementation of the EU commitments towards a sustainable transport policy in the region will necessitate improved environmental protection and integration standards, the development of new structures, legal procedures, new safety standards, etc.

Implementation of this ambitious plan requires pooling together all the relevant financing sources, both public and private as well as nationally and internationally. Of them, the European Neighbourhood and Partnership Instrument (ENPI) and its "Neighbourhood Investment Facility" as well as the EIB and the EBRD are the major sources/donors.

Expert forecasts predict that the main annual volume of transit cargo through the Black Sea to Europe will grow to 500 million tons in the nearest 5-10 years.

The main environmental concerns linked to marine transport influence in the Black Sea are: oil spills and other contaminations, introduction of invaders in ballast waters, dredging,

¹ IP/07/119

² Central axis: to link the centre of the EU to Ukraine and the Black Sea and through an inland waterway connection to the Caspian Sea. A direct connection from Ukraine to the Trans-Siberian railway and a link from the Don/Volga inland waterway to the Baltic Sea are also included.

³ COM(2007) 160 final

coastal transformation due to development of port infrastructure, CO₂ emissions other gases with an impact on climate and air pollution.

According to UN Convention on Law on the Sea of 1982 the Black sea corresponds to the status of “enclosed or half-enclosed” sea. The unique nature of hydrobiological indexes and recreational resources of the sea merits special consideration of its ecosystem.

The planned future capacity of oil terminals on the Black Sea’s east coast is approx. 150 million t/year (and up to 350 million t/year in the more distant future). The maximum volume limit for transport of oil products through the Bosphorus of 146 million tons per year, is already met. Oil transport is also increasing in Russian ports, for example in the Kerch channel and in Tuapse. “River-to-sea” vessels carry oil deliveries from Russian ports to Constance. Practically all Black Sea countries aim to increase the transshipment volumes of oil.

Taking into account technological losses, about 300 thousand of tons of oil products can contaminate the marine environment in the Black Sea port areas each year. Port infrastructure development will clearly have a considerable influence on the transformation of shore area.

There are more than five major oil terminal projects in the eastern part of the BS region. Terminals are also being developed on the Taman peninsula. On the other side of the sea, Bulgaria and Romania also propose to construct new terminals.

The ecological aftermaths of oil product dumping in ports are poorly dangerous. However the global accident of tanker in territorial waters of the Black Sea states is very dangerous and poorly predicted!

Maritime transport is the backbone of globalisation. Bigger, faster and more efficient ships have integrated the most distant regions into the world market. Maritime transport has become a large and rapidly growing source of local air pollution and greenhouse gas emissions. The fuel consumption of a cruise ship is equivalent to 12,000 cars. The exhausts of diesel engines of large container vessels during entrance to and exit from the port release air pollutants equivalent to those produced by 300 000 cars per hour⁴.

A recent report presented by a working group of the International Maritime Organization (IMO) estimated that worldwide fuel consumption by ocean going vessels was in the range of 332 – 406 million tons of bunker fuel per year (with an estimated average of 368 Million tons).

Such a fuel consumption would represent a total of 1,121 million tonnes of CO₂ emissions in 2007, with an estimated increase to 1,478 million tonnes of CO₂ by 2020. By comparison, total emissions from transport in the EU in 2005 were estimated to be 1,247 million tonnes, which shows the importance of shipping as a global growing source of CO₂ emissions.⁵

Another problem associated with fuel consumption from ships is the emission of air pollutants. Sea-going ships typically use types of fuel oil with very high sulphur content, leading to massive emissions of SO_x. Moreover, the lack of stringent regulation to vessel engines also leads to significant NO_x emissions. According to the European Commission, emissions of NO_x and Sox from ships in the EU in 2020 are likely to exceed those of all land-based emission sources together.⁶ Particulate (PM) emissions are an associated problem, particularly in harbour areas.

While ships tend to be a relatively environmentally friendly mode of transport, seen on a per km basis, due to the growing volumes of maritime transport globally their overall contribution to climate change and air pollution is growing. This reflects the failure of the IMO to adopt policies and measures that effectively reduce emissions from ships. Given this, further development of maritime transport in the Black Sea should be accompanied by measures to ensure that incentives to reduce emissions from ships are in place.

The European Commission is preparing measures to address the climatic impacts of ships. A report by CE Delft points to several policy options that could be implemented if the

⁴ <http://www.earthjastis.org/background/ocean-pollution-global-shipping-and-the-cruise-industry.html>

⁵ Input from the four subgroups and individual experts to the final report of the Informal Cross Government/Industry Scientific Group of Experts. INTERNATIONAL MARITIME ORGANIZATION, SUB-COMMITTEE ON BULK LIQUIDS AND GASES. 28 December 2007

⁶ European Commission (EC). 2005. The Communication on Thematic Strategy on Air Pollution. Belgium

IMO continues to fail to address this issue. One of the most promising options seems to be the inclusion of maritime transport in the EU Emissions Trading Scheme⁷.

To address air pollution from ships there are several policies under discussion at IMO and EU level and a proactive approach should be taken if major impacts are to be avoided. At IMO level measures to reduce the sulphur content of fuels and to regulate NOx emissions are under discussion. This “at source” policy is likely to produce results, and the Commission has confirmed that EU measures are to be expected in this field.

Regional and local measures can also be taken. For example, the North and Baltic seas are recognised Sulphur Emissions Control Areas (SECA), a provision that obliges ships to use fuels with lower sulphur content in these marine areas. It would be extremely important to ensure that the Black Sea also becomes a SECA since it would dramatically cut SOx emissions with positive side-effects on particulate emissions. Moreover, measures can also be taken at port level, for example the use of shore-side electricity to provide power for ships when at ports⁸. Harbor or fairway fees differentiated to promote the use of efficient engines are also promising policy tools which are already readily available⁹.

Foreign species transferred between regions in ballast water tanks create considerable problems for the maritime environment and for the stability of ecosystems, and thus threaten the economy and health of population of seashore regions. Among foreign species recently brought to the Black Sea 34% are brought for aquaculture, and 66 % were transferred to the Black Sea as marine larvae in ballast waters and/or as the organisms attached to the vessel's hulls.

Dumping of soil because of dredging in ports and canals creates the additional sources of contamination with heavy metals and oil. The number of areas of soil dumping has increased from 12 to 15, and will increase with the growth of shipping in the region. The volume of the dumped.

In January 2006 the European Commission published a Communication on the Promotion of Inland Waterway Transport (IWT) setting out the Action Programme “NAIADES”¹⁰. The Commission plans to support IWT on the Danube by granting financial support under the TEN-T and NAIADES programs. The Commission plans to grant budget support for these programs of approx. €20,35 billion from 2007-2013¹¹.

The TEN-T report¹² on Priority Axis 18 (Rhine/Meuse-Main-Danube) states: "To give access to vessels of up to 3000 tonnes, a minimum draught of 2.5 meters is required along the entire length of the waterway". The background report¹³ for the NAIADES Programme translates this tonnage capacity into 3.50 m to 4.00 m draught, which implies drastic adaptation of the river. This scenario would result in an ecological disaster for the Danube considering its current ecological status¹⁴.

There are plans to build the Dnieper-Daugava canal over the course of 10 years. The canal is intended to provide a transport connection between Kherson (Ukraine) and Riga. In theory the canal could carry up to 240 million tonnes of cargo, but the building of canal bears certain threats for ecosystem of the Dnieper. The proposed waterway includes navigation through the Pripyat River. Some sections of the Pripyat River are listed among waterway bottlenecks as being not sufficiently deep for navigation¹⁵: Pripyat from Stakhovo to Pkhov - low

7 CE Delft. Greenhouse Gas Emissions for Shipping and Implementation Guidance for the Marine Fuel Sulphur Directive. December 2006.

8 For more information on shore-side electricity there is a Commission recommendation on the promotion of shore-side electricity for use by ships at berth in Community ports (2006/339/EC)

9 Transport and Environment Review Of CO2 Abatement Policies For The Transport Sector // European Conference of Ministers of Transport Council of Ministers/ CEMT/CM(2006)4/FINAL

10 Communication From The Commission First progress report on the implementation of the NAIADES Action Programme for the promotion of inland waterway transport / COM(2007) 770 final, Brussels, 5.12.2007

11 TEN-T priority axes & projects 2005 /europa.eu.int/commrten/transport/projects/doc/2005_ten_t_en.pdf

12 Trans-European Transport Network; TEN-T priority axes and projects 2005, ec 2005

13 Study commissioned by the European Commission: Prospects of inland navigation within the enlarged Europe, Full Final Report March 2004. http://europa.eu.int/comm/transport/iw/doc/pine_report_report_full_en.pdf

14 Detailed analysis of the sustainability of the NAIADES Action Program, DCP WWF

15 TRANS/SC.3/159. Economic Commission for Europe Inland Transport Committee. Working Party on Inland Water Transport. Inventory of Most Important Bottlenecks and Missing Links in the E Waterway Network. Resolution No. 49

maximum draught (1.3 m), from Pskhov to Belarus/Ukrainian State border - low maximum draught (1.5 m). Removal of such bottlenecks will require intensive dredging, which could be problematic since the sections of the river mentioned lie in territories contaminated as result of the Chernobyl accident in 1986. The dredging of sludge and bottom soils that are heavily contaminated with radionuclides creates the risk of radiation spread¹⁶.

The Russian Black Sea oil transit by river ships through the Don during navigation period with a raid reload to marine ships in the Kerch channel makes the 1,7 million t/years.

This Russian transport policy resulted in the damage or grounding (low-water) of more than five vessels during bad weather conditions on 11 November 2007.

This remphasises the need for careful consideration of potential negative consequences of development and intensification of traffic on Danube ecosystems (taking into account, for example, buildings of oil port in Dzhurdzhuleshty (Moldova), ISPA Project (Romania), Bystroye canal (Ukraine)) (Appendix F). In this context the EC should support the International Commission for Protection of Danube River (ICPDR) initiative to oversee new projects and the development of navigation of the Danube¹⁷.

Inland navigation may be in general more energy-efficient than road and air transport, but it can also create serious ecological impacts on a local scale and emissions are comparable to those of rail transport¹⁸. Inland waterway transport can only offer a sustainable alternative to road or air transport if navigation routes are integrated into a sustainable distribution network in the target countries, multi-modal logistics infrastructure is improved, and a balance is found between environmental, transport and socio-economic needs.

The extension of the TEN-T network is potentially a positive development, if managed with due consideration of social and environmental impacts and their costs. Guarantees are needed that together with physical infrastructure, good environmental and democratic practices are developed, such as: Public participation and transparency of all the studies related to infrastructure projects; implementation of the precautionary principle for valuable biodiversity, air quality and residents' health; harmonization of environmental and social standards among the donors in the region; giving priority for the upgrading, optimisation, interoperability and modernization of the railway sector in neighbouring countries and regions; application of the user / polluter pays principle¹⁹.

Ensure and promote principles of sustainable development by taking into account the economic, environmental and social consequences and costs of infrastructure plans and projects and horizontal measures.

Environmental conservation should also be taken into account so as to avoid environmental degradation. In that respect, projects selected for financial support must be subject to an Environmental Impact Assessment (EIA). The EU should require the international financial institutions (IFIs), including the World Bank, to follow the recommendations of High Level Groups (HLG), while financing the parts of TEN-T extension projects in different countries

The ideal strategic planning of transport infrastructure would include strategic environmental assessment (SEA) covering transport based on multi-modal transport corridor analysis, along with non-transport demands on the roads, railways and waterway. The idea that economic development will automatically follow the routes of new transport infrastructure is now generally viewed as outdated in western Europe. The current and future costs, benefits and needs for transport infrastructure needs must be assessed along with possible alternatives for attaining the main policy objectives. For example if the main objectives expected from the infrastructure development are economic growth, employment or regional development,

¹⁶ CEE Bankwatch Network comments on the HLG report on TEN-T extension to the neighbouring countries

¹⁷ Joint Statement on Development of Inland Navigation and Environmental Protection in the Danube River Basin, ICPDR

¹⁸ "Inland Navigation and Emissions: Literature Review" available at http://assets.panda.org/downloads/wwf_iwt_emissions_lit_review.pdf

¹⁹ CEE Bankwatch Network comments on the HLG report on TEN-T extension to the neighbouring countries

authorities should consider education, training or technological programmes as potential policy alternatives.

National Transport Strategies in the Black Sea countries should prioritize harmonisation of their transport legislation and regulations with EU standards.

Incorporation of TRACEA into TEN-T could give additional effects: propagation of EU environmental requirements has powerful potential to reduce the negative impacts of transport (and future developments) on the environment in the region.

Multilateral cooperation, in particular in the context of the implementation of the TRACECA strategy until 2015 and the Baku process, as well as the plans for a Mediterranean regional transport action plan complement the bilateral action plans.

Promote interoperability of networks between the EU and the neighbouring countries and further approximation of legislation and policies in the neighbouring countries towards EU standards with a view of ensuring continued economic and social development and environmental sustainability.

Speeding up border crossing procedures by implementing without delay the relevant international conventions, as already adopted in the EU, by introducing “one-stop” offices through shared facilities, simplification and harmonisation of trade and transport related documentation in line with the EU practice.

Application of international conventions, social and environmental impact assessment, public procurement procedures etc. in accordance with the EU standards, donors' funding rules and international best practice.

Beginning preparations is recommended towards the signature of a Protocol (or similar document) on the protection and rational use of the Black Sea between the EU and the BS countries. The Protocol should include sections on: ballast waters; oil contamination; marine traffic regulation; technical questions of environmental safety; co-operation between marine transport and inland waterways; ensuring high quality in transport vehicles, vessels and infrastructure.

To develop the law on unified environmental taxation for freight transport through the BS region and exclusive use of revenues raised for nature protection purposes. Ensure that all existing and/or new ports and terminals satisfy the MARPOL convention requirement for special zones.

EIA must be carried out for all planned transport infrastructure projects. The projects identified for funding should undergo all assessments required by EU legislation, as well as meet the requirements of Espoo Convention, MARPOL Convention, Black Sea and Aarhus Conventions.

The current list of projects should be considered to be merely indicative. More detailed master plans for the transport axes should be developed. These master plans should be subject to strategic economic, environmental and social impact assessment in line with best international practice and when relevant with EU legislation²⁰.

Standardize and harmonise of rules on customs, environmental, sanitary and other types of control. Introduce and promote resource- and energy-saving technologies and minimise energy consumption in transport. Implement new technologies including traffic management and information systems in all modes, including satellite navigation (Galileo). Elaborate new state construction norms for highways, railway lines and navigation canals in Ukraine. Carry out human health assessments, particularly of children's health, in settlements situated near international transport corridors. Investigate possibilities to construct transport corridors away from natural habitats / corridors and protected areas and areas reserved for future protection.

For the development of environmentally sustainable sea transport the following steps are necessary: refusal of using of single-hull tankers; creation of "rescue ports" equipped with the

²⁰ For practical guidance on the implementation of socio-economic appraisal and on strategic environmental assessment, see the 6th Research Framework Programme projects HEATCO at <http://heatco.ier.uni-stuttgart.de/> and BEACON at <http://www.transport-sea.net/results.phtml>

infrastructure to help vessels avoid incidents; ensure availability of detergents to manage oil spills in sea ports; equip local tug boats with facilities to deliver and apply such detergents at oil spill sites; identify in cooperation with other parties to the Convention on the Black Sea, places for safe storage (or transshipment) of damaged tankers; development of clean-up facilities in ports; develop a system to ensure (ecologically) safe freight transport.

Measures to resolve the ballast water problem might include: disposal facilities for ballast waters and replacement of aquatic ballast at sea; on-board processing of ballast waters.

To reduce air pollutant and greenhouse gas emissions from vessels in port it is necessary to introduce programmes and requirement for shore-side electricity provision and limits to engine running whilst in port.

The establishment of the European Marine Register, should include the possibility to include vessels from Black Sea countries. Other interesting measures include: provision of unified rules of operation and control over national qualification; inclusion of the Black Sea region in activities of the European Maritime Safety Agency (EMSA); improved monitoring of movements of all ships in European waters using the system of GALILEO.

Preparation of a common Black Sea Transport Development Scheme is necessary and should be based on strategic environmental assessment (SEA) covering transport on the basis of multi-modal transport corridor analysis, along with non-transport demands on the roads, railways and waterways. The scheme should identify the most appropriate scenario from an environmental and social point of view and serve as the framework for investment decision-making.

Implementation capacity of providing of European transport policy for the Black Sea region countries is connected by using of present international marine and regional organization: IMO, Organization for Black Sea Economic Cooperation (BSEC) and the NGOs in the BS region.

The public consultation on extension of the TEN-T into neighbouring countries raised concerns that the further development of some of the transnational axes could have negative impacts on the environment and particularly on biodiversity. Potential conflicts should be identified early and managed pro-actively by using legal mechanisms, arbitration courts and special representatives, improvement of interaction of national and trans-national transport policies in the Black Sea Region.

There are opportunities for the development of social partnerships, the market for environmental information and technologies, transfer of marine technologies, creation of marine business-clusters. Development and involvement of civil society groups is important in the transport sector, in order to bring social and environmental perspectives to the attention of policy-makers and the local community. A series of seminars on greening transport policy for decision-makers in the Black Sea region would be useful to share examples of best practices in transport (infrastructure) development.