



CABINET OF MINISTER

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To: Olena Kramarenko, Deputy Minister

Ministry of Ecology and Natural Resources of Ukraine

Ref: Environmental impact assessment report on the proposed activity «Reconstruction of construction projects «Arrangement of the deep-water navigation fairway Danube river - Black sea in the Ukrainian part of the delta»

Dear Deputy Minister Olena Kramarenko,

Following your letter, relayed to us by the Embassy of Ukraine in Romania on the 8<sup>th</sup> of May 2023, regarding the environmental impact assessment report on the proposed activity «*Reconstruction of construction projects «Arrangement of the deep-water navigation fairway Danube river - Black sea in the Ukrainian part of the delta»*» (referred to as "the project" throughout the text below), I hereby submit, in accordance with the provisions of the Espoo Convention, several comments and observations received in the process of public consultations on the contents of the received document.

As you know, the protection and management of the Danube Delta as a transboundary biosphere reserve inscribed on the UNESCO World Heritage List are duties both our countries have the obligation to ensure. The importance of integrating transboundary issues in decision making is also stated in the Association Agreement between the European Union and Ukraine. The Association Agreement also contains specific provisions in respect of the obligation of the parties to implement more rigorously the international commitments made by EU Member States and Ukraine in the spheres of navigation, fisheries, protection of the environment, in particular of aquatic ecosystems, including conservation of living aquatic resources, to achieve good ecological status, as well as in other relevant spheres of human activity.

The project foresees the construction of the Bystroe - Chilia maritime navigation channel in three stages, the first of which is already almost completed.

For the first stage:

- dredging the bar of the Bystroe distributary and a marine access channel (approach channel - fairway) so that it is possible to navigate vessels of 135m length, width of 16.5m and a draught of 4m;
- construction of a 1,670m long breakwater on the northern side of the marine access channel;
- setting up the marine area for unloading the dredged material (dumping area) in front of the sea front of the Chilia delta, at a water depth of about (-18) m;



- construction of a dam to direct the river current (river current diversion spur) at the bifurcation of the Bystroe distributary from the Starostambulskyi branch (km 11). The dam will be built in the immediate vicinity of the bifurcation point, upstream of it, and will have the following technical characteristics: length - 350m, height above the bottom 2m, water depth at the head of the dam - 4.6m and will be oriented at 25° to the left bank of the Starostambulskyi arm.

In stage 2, the following works will be carried out:

- increase the depth of the Bystroe - Chilia maritime navigation channel up to 7.68m (including the bar of the Bystroe distributary) in order to allow the passage of vessels with the following parameters: length 125.0m, width 17.0m and draught of 5.0m;
- the maritime access channel will have a length of 3,059 m;
- construction of the protection breakwater on the southern side of the maritime access channel with a length of 2970m.

Stage 3, the final, consists of:

- increasing the depth of the Bystroe - Chilia maritime navigation channel to 10.0m to ensure the passage of vessels of up to 7.2m draught;
- the extension of the protection breakwaters for the maritime access channel built in stages 1 and 2 by 1,570m, for a maritime access with depths >10.0m.

The total volume of material dredged in stage 2 will be 2,517,495 cubic meters, and in stage 3 - 10,168,955 cubic meters.

On the Vylkovo - Izmail section of the Chilia distributary, the dredging of the 10 shallow areas (thresholds / sand bars / sills) existing on the course of the arm is planned. For the dredged material from these shallow areas, 4 dumping basins will be set up for a total volume of 7,471,035 cubic meters:

- dump area nr.6 - upstream end of the Dallerul Mic Island (Km 67.45 - 67.00), with dredging for stage 2 (navigation channel depths of 6.31m) - 1,784,730 cubic meters and for stage 3 (depths of the channel of 8,56m) - 1,347,085 cubic meters;
- dump area nr.9 - downstream end of the Dallerul Mic island (Km 61.4 - 60.4), with dredging in stage 2 - channel depths of 6.31m, with a volume of dredged materials of 698,200 cubic meters and in stage 3 - channel depths of 8.56m, with a volume of dredged materials of 162,360 cubic meters;
- dump area nr.12b - Chilia area (Km 45.6 - 45.2), in stage 2 - channel depths of 6.43m, with a volume of 600,000 cubic meters, and in stage 3 - channel depths of 8.68m, with a volume of 213,250 cubic meters;
- dump area nr.12c - downstream of Chilia (Km 39.0 - 39.5), in stage 2 - channel depths of 6.45m, with a volume of dredged material of 331,800 cubic meters, and in stage 3 - channel depths of 8,71m, with a volume of 213,250 cubic meters.

Although most of the observations of the Romanian party were taken into consideration, we regret that the report does not take into account some of the key aspects, such as:

- integrating mathematical models regarding climate change in the Danube Delta,
- assessing impact on the whole territory of the Delta,
- creating and analysing complex multi-layered maps of the surface and underground water bodies in the zone of influence of the planned activity and the adjacent zone,



- conducting hydraulic research of the Chilia arm before and after project implementation (for the correct assessment of modifications brought by the project),
- assessing cumulative impact of the project with other projects developed both on the Chilia arm banks and in the Delta,
- assessing impact of the project on transitional and coastal waters,
- assessment of impact on the reservoir of both river banks,
- assessing impact on fauna and especially sturgeon,
- cumulative impact of the economic activity on water bodies and Natura 2000 sites, which are fundamental as appropriate precaution for the correct assessment of environmental impact on the Danube river and the Danube Delta.

From a hydrotechnical point of view the report presents, mainly, the study on models of the change in flow discharges on the Starostambulskyi and Bystroe distributaries due to the deepening of the channel at the bar and on the marine access channel, of the influence of the current directing breakwater at the bifurcation point of the two arms, of the dynamics of the sediments, especially in suspension, from the marine dumping area to the South by the coastal currents and of the geo-morphological changes of the coastal area in the section between the mouths of the two arms.

The report focuses on aspects which have lower transboundary significance but gives little importance to aspects like: hydrological changes of the river in terms of the morphological conditions: the depth and width of the course, of the channel, the structure and substrate of the riverbed; the hydrological regime: the amount of the flow, the disruption of the continuity of sediment transport, the speed of water, etc. and also their influence on the migration of sturgeons, which is carried out mainly on Chilia arm.

Regarding the hydrological impact, the study justifies the insignificant nature of the impact by referring to a percentage of the flow increase (1%), without presenting technical arguments in this regard. In addition, in the motivation of the insignificant hydrological impact, reference is made to a decrease in debit on the Chilia arm due to the navigation works related to the port of Tulcea and Sulina, with no technical data to support this statement. The works referred to are existing works, the impact assessment report should aim at the impact generated both by existing works and proposed works. This aspect should also to be taken into consideration when assessing cumulative impact. A comparative analysis and a pertinent answer in this regard can be provided after the analysis of the hydrological data in the relevant sections for the Romanian side, as a result of the hydraulic modelling. The study does not present these results in detail, presenting only possible percentages in terms of increases/decreases of level.

In the same context, it is specified that *"Regarding the likely impact of such a redistribution of the flow on the operation of the Musura channel, in the post-project analysis stage, when a significant cost reduction trend is detected in this channel, there may be appropriate hydrotechnical mitigation measures developed"*. Reference is thus made to post-implementation mitigation measures, an aspect that does not support the eligibility of the terms of the documentation regarding the environmental impact assessment in the context of the Espoo Convention. It is thus necessary to estimate this impact and at the same time to identify and describe the measures to mitigate the impact of the works proposed by the project, their establishment in the post-implementation period being inadequate.



Regarding impact on the morphology of coastal waters, it is mentioned that "*due to insufficient information, it was not possible to formulate an opinion regarding the significance of any possible cross-border impacts of the DWNF on the Romanian coastal areas between the Chilia and Sulina arms, thus not being possible to formulate a point of view*". In this sense, we consider this assessment to be incomplete.

Regarding the evaluation of the possible cross-border impact of the DWNF structures on the coastal area and with direct influences in terms of the morphological conditions of the transitional (Chilia-Periboina) and coastal (Periboina-Cap Singol) water bodies, the result of a series of *modeling waves - sea currents - transport of alluvium/sand - remodeling of the coastal bed* is presented. Reference is made to the scenarios "without hydroelectric dams", but the study does not present details in this regard (which hydroelectric dams are taken into consideration, what are the considerations for defining such a scenario). In addition, introducing a scenario that excludes an existing hydrotechnical construction (non-feasible scenario) in the modelling is not methodologically correct. Clarifications in this regard are necessary.

The study presents in the "*description of the characteristics of the activity during the implementation of the preparatory and construction works and the implementation of the planned activity - Section 1.3*", as targeted sections: *the city of Valkov- Ceatal Izmail* on the Chilia arm and *Ceatal Izmail - Reni*, on the Danube river. Because of the dredging works that will be done, we believe there is an impact in terms of the morphological conditions of the water bodies Shoal Isaccea and Chilia arm, especially in terms of the substrate conditions of the riverbed. The study does not present references to this impact, also does not include possible mitigation measures in case a negative effect is identified. Clarifications of these aspects are necessary.

Intensive navigation can produce waves, so when ships transit, there are artificial changes in the water level along the riparian areas, consisting of large level variations, in a short period of time. The consequences of these anthropogenic changes in the water level are manifested by the disruption of breeding habitats for fish and benthic invertebrates, as well as the uprooting of aquatic vegetation and the possibility of bank erosion. Measures to stop these effects should aim to protect the banks using, as far as possible, ecological, environmentally friendly methods, including gabions placed in front of the banks. Likewise, the limitation of navigation speed, especially on sectors with unprotected shores, can lead to a decrease in the production of waves and, respectively, a decrease in the variation of the water level on the banks.

Another negative effect of ship engines is the lifting of fine sediments from the bottom of the riverbed, which leads to increased turbidity and damage to natural habitats and plant and animal species. The higher the ships' draught, the closer the engines are to the bottom of the bed and the more intense the sediment entrainment process. The measures that are imposed aim at the implementation of a complex monitoring program of natural habitats and plant and animal species (hydrological, biological, chemical monitoring); another measure, could be to improve the granulometric bed by supplying coarse sediments in areas where increased turbidity is observed.

The passage of large draught vessels requires current dredging to maintain the navigable channel depths above 8m. This activity leads to the modification of the sediment regime. The measures that are imposed aim at the periodic realization, once every 3 or 5 years, of topobathymetric measurement campaigns, along the entire width extension of the Chilia arm, especially in the critical sectors, so as to ensure continuous monitoring and obtaining the necessary data for the evaluation of the intensity of the



hydromorphological processes and the improvement of the knowledge of the dynamics of the Danube riverbed. Also, intelligent dredging management, sediment relocation in the bed, narrowing the channel width by dredging only a narrow part of it instead of the full width, are operational measures to reduce the impact of navigation on the sediment regime.

Certain aspects remain unaddressed:

1. The report only presents the hydrological changes of the Starostambulskyi and Bystroe distributaries as a result of the deepening of the channel at the bar and of the maritime access channel: at a water discharge of 6,000 mc/s an increase of +2.6% in the flow rate of the Bystroe arm will be recorded and the Starostambulskyi arm will lose - 2.4%. There is no modelling for the distribution of the total Danube discharge among the three main distributaries of the Danube Delta - Chilia, Sulina and Sf. Gheorghe when reaching the final foreseen parameters of the Bystroe - Chilia maritime navigation channel (depths of approx. 10.00m for the entire course of the Chilia arm) considering both Chilia and Bystroe distributaries take a significant percentage of Danube's debits. Such modelling is essential for determining the environmental changes in the entire Danube Delta - Biosphere Reserve and UNESCO World Heritage Site, following the construction of a maritime navigation channel with the characteristics specified in the project.

2. No mention is made of the influence of the current directing breakwater at the bifurcation point of the Bystroe arm from the Starostambulskyi arm, on the sediment discharge, especially on the bed-load. In fact, the motivation for the construction of the breakwater was to direct the flow of sediments towards the Starostambulskyi distributary mouth area, and in thus to ease the burden of annual dredging at the Bystroe mouth. On the other hand, the increase of the fine and coarser sediments discharge towards the mouth of the Starostambulskyi arm substantially changes the influence of these alluviums in the area of the mouth of the Sulina arm in the sea.

3. There is no mention of the impact of the decanting water, loaded with pollutants, which will flow into the Chilia arm from the 4 dumping areas of dredged material from the 10 shallows along the distributary between Vylkovo and the port of Izmail.

These aspects are important taking into consideration the developer's conclusion that in the conditions of the Danube Delta, navigation without regular/permanent human intervention is fundamentally impossible.

In the report it is stated that for the passage of ships with a draught of 7.2m an "access to sea of >10m" will be realized. In our opinion, it is excessive insurance to prevent possible sedimentation in critical points; the maximum depth for this dredging is not specified and a limit value should be established in order to take into account a correct assessment of the impact on the environment, especially on the hydrodynamics and hydromorphology on the Chilia arm and the Tulcea arm which have influence on the flows on the Sulina arm, waterway of international importance. The value of ">10m" is new and in contradiction with what is currently established on the sector between Bar Sulina - Sulina Channel - Tulcea arm - Ceatal Izmail on the recommendation of the Danube Commission, namely providing depths of 7.32m for ships with a 7.01 draught. Also, taking into consideration elements such as ship's squat and under keel clearance, there is no need to deepen the fairway to 10m.



Ship's squat is the level at which a ship sinks when it is moving, compared to that level when it's stationary, on waterways with a limited cross-section. A loaded ship has a squat of aprox. 20-40cm.

Under keel clearance is defined as the distance between the bottom of a moving ship and the highest point of the riverbed. To prevent damage to the keel and/or propeller, it should not be less than 20cm for a riverbed with gravel and 30cm for a rocky riverbed. In this sense, for a ship with a 7.2 draught the minimum fairway depth that should be ensured is 7.90-8m.

We would like to mention the fact that extending navigation for ships under the pavilion of third party states on Chilia arm is contrary to the *Treaty between Romania and Ukraine regarding the Romanian-Ukrainian state border, collaboration and mutual assistance in state border issues, signed at Cernăuți on June 17, 2003* and also against the *Convention regarding the regime of navigation on the Danube, 1948*, for which both Romania and Ukraine are signatory states.

As you know, the hydrotechnical works done to transform Sulina into an maritime channel at the end of the 19<sup>th</sup> century have affected the water flow to Chilia arm. The modifications of the river arm proposed in the project will create an impact that needs to be carefully and correctly assessed before any decision is taken. There is legitimate concern that hydrotechnical works on Chilia will affect the water flow of the other two arms and to the underground water bodies causing serious disturbances in the ecosystem and affecting the safety of navigation. These issues are even more concerning if one takes into consideration climate change and the drought of recent years.

As stated in Chapter 10 - *Difficulties identified in the process of preparing an environmental impact assessment report*, we believe that not taking into account the cumulative effect of fluctuations in climatic conditions, especially in the case of modelling the dynamics of water flow, sediments and other hydraulic processes in the drought scenario, using a series of historical measurements, cannot fully highlight the impact in the transboundary area of the planned works. Even if, according to the procedure of the Espoo Convention, this can be done at the post-project monitoring stage and at the post-project analysis, the results/effects identified later may raise problems concerning the very nature of the works carried out. Consequently, considering the importance of the increasingly frequent reduction of the Danube flow in the border area during drought, the presentation of such a scenario in the design phase is appropriate and necessary.

Frequently cited bibliographic references (with no. 5-7) which refer to details regarding flora and fauna species, monitoring, water status assessment, probability and significance of possible transboundary impacts, etc. are not available online in order to substantiate the analysis, namely:

5. Report on the strategic environmental assessment of the program of socio-economic and cultural development of the Odesa region for 2022. Kyiv. 2021. 107 p.
6. Danube River Basin Management Plan (2025 - 2030). Ministry of Environmental Protection and Natural Resources of Ukraine; State Agency of Water Resources of Ukraine. 2022. 57 p.
7. The Lower Danube River Subbasin Management Plan (2025-2030). Ministry of Environmental Protection and Natural Resources of Ukraine; State Agency

The Non-Technical Summary states that "*The scope and parameters of the listed biotechnical measures (measures to artificially maintain optimal depths in the Bystre*



*corner areas and in the water area separating the Ptasyna promontory from the main island) were to be specified within the process of additional natural studies, which were not carried out due to force majeure circumstances."* Or precisely the key environmental factors most sensitive to the planned activities and works of the project in the cross-border context, namely the aquatic environment and the most valuable components of the deltaic biome, whose existence is linked to the aquatic environment - fish and birds, are not analysed based on detailed and substantiated information.

We reiterate the importance of the Chilia arm for the protection of the critically endangered Danube sturgeon, for which our studies show that more than half of adults and more than two-thirds of juveniles use the Chilia arm to get to the Black Sea and back, and regret that the report does not take into account the data provided by the Romanian Institute for Ecological Research and does not elaborate on the impact the project has on migration and population, giving only one paragraph to the issue and concluding that dredging works are *"unlikely to have a significant transboundary impact"* and the impact on the migration of fish is classified as *"probable negative transboundary impacts, but not enough information to judge their significance"*.

Having in mind the negative example of the Sulina branch dredging at the end of the 19<sup>th</sup> century, which led to the drastic reduction of sturgeon migration on this branch, there is a very high probability that this situation will be repeated with the arrangement and use of the Bystroe channel. If the Chilia arm also becomes an inaccessible area with respect to the possibility of sturgeon migration corroborated with the situation from the Sulina arm, the only possibility of migration of sturgeon species will remain on Sf. Gheorghe arm, with a reduction of migration routes with more than 67%.

From the data gathered from multiannual studies which monitored both the behaviour and migration of adult sturgeons and juveniles from aquaculture and released into the Danube in order to support wild populations, by analysing the behaviour of ultrasonically tagged juveniles, it was highlighted that 70% of them chose the Chilia arm as the main migration routes to the Black Sea habitats as opposed to the other arms. The studies also showed an increase in the distribution of migration routes in favour of the Chilia arm.

The results showed that the Chilia branch is an important migration route for the sturgeon species to the favourable habitats along the Danube, a route that indirectly participates to the perpetuation of these species and to the natural maintenance of populations.

Given the fact that the Sulina branch has become a route used sporadically by anadromous sturgeons, due to the fact that there is an anthropogenic pressure generated by maritime transport, dredging and poaching, it becomes certain that the implementation of the project to ensure maritime navigation on the Bystroe channel will have an impact on the migration routes of the anadromous sturgeon population on the Chilia arm. Analyzing the possible migration routes of the anadromous sturgeon population, if a maritime route will be provided through the Bystroe channel, there is a major risk that the migration routes will be reduced in the future by up to 40% of the existing potential.

Lastly, we would like to make some additional observations:

1. The coordinates included in *Table 1.1 - Coordinates of the centres of loading blocks*, when loaded into a GIS system, point to Sulina area;
2. In tables **Table 5.28 - Summary assessment of the impact of deep-water navigation during construction** and **Table 5.29 - Assessment of the impact of the DWNF during**



**the period of operation after reconstruction** there are references to the existence of a significant impact, damage to the biota (ichthyofauna and the trophic base), exemplified by the following:

**Table 5.28 - Summary assessment of the impact of deep-water navigation during construction**

*“Deterioration of water quality due to the entry of pollutants from the soil.*

*The impact is significant, but local. It is permissible, taking into account the provided compensation for damage to the ichthyofauna.*

*The impact on biota is significant. The impact is permissible, taking into account compensation for losses to the fish feed base provided for by the project.*

*The impact is significant at the dumping site, periodic and local. The impact is permissible, taking into account the provided compensation for damage to ichthyofauna.”*

**Table 5.29 - Assessment of the impact of the DWNF during the period of operation after reconstruction**

*“Dumping is permissible only in the area of the sea previously specially designated and used for this purpose. The impact is significant at the dumping site, intermittent and local.*

*The impact is permissible, taking into account the provided compensations for damage to the ichthyofauna.*

*Probability of loss of safe nesting sites of protected bird species, disturbance of along-shore feeding migrations of fish and spawning grounds. The impact on the fauna is subject to monitoring, based on the results of which regulatory protective hydrotechnical measures and monetary compensation for damages are provided.”*

**The information presented is not clear and/or complete, and clarifications are needed.**

3. There is also reference to producing an impact on large areas (page 73 of the English version of the Report):

*“In the conditions of the Danube delta, these changes not only affect the state of water and coastal water biocenoses, but can cause an impact on the water regime of large areas of the delta islands and even changes in the processes of its evolution.”*

4. The Report repeatedly refers to the granting of compensatory measures in relation to the damage caused to the ichthyofauna and the trophic base, respectively compensations exemplified in the situations presented below (page 519 of the English version of the Report):

*“Damage that will be caused to living water resources during the works and that is the subject of compensation is due to the death of food organisms for fish as a result of:*

- the complete destruction of bottom biocenoses in the dredging and soil storage area;*
- partial clogging of bottom biocenoses in adjacent water areas;*
- the death of zooplankton in the area of increased turbidity, which is formed in the process of soil development and discharge.”*



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This aspect should be clarified, especially considering the situations described by the applicability of compensatory measures (eg. destruction, death of biological components).

Please accept, Ms. Kramarenko, the assurance of my highest consideration and esteem.

Mircea FECHET  
Minister

