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OF THE SLOVAK REPUBLIC



**Action No. 2015-SK-TM-0151-W**

**“Upgrade of Gabčíkovo locks”**



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### 1. Summary

The Danube is not only the **backbone of the multimodal TEN-T Rhine-Danube Corridor**. As a waterway of international importance E80 it has to comply with mandatory navigational parameters required for year-round use of the waterway in accordance with the European Convention on Main Inland Waterways of International Importance (AGN) as well as with the Belgrade Convention and the recommendations of the Danube Commission. The Danube waterway as a waterway of international importance shall provide for a specific service efficiency under international classification of inland waterways, which is not possible under the current ratios due to insufficient provision of required parameters of the fairway throughout the navigable season.

The **strategic objective** of the project is to **increase the efficiency, reliability** and thus the **competitiveness** of the Danube waterway, which is part of the Trans-European Transport Network (TEN-T). Among other objectives, it aims to **strengthen the sustainability of waterway transport between** Slovakia and other countries on the Danube waterway as well as, **in accordance with the policy of the European Union**, to support this economically efficient and environmental friendly transport mode, which has enough spare capacity.

**The current status of the Gabčíkovo locks limits safety, capacity and reliability of shipping as a consequence of:**



1. **One lock is shut down due to a malfunction**, the second lock is operational only partially. Defects lie in the hydraulic filling system (technological part - caps systems, construction part - degraded concrete and channel part - bad route shaping, poor management of the hydraulic system resulting from a poor control system of the locks) and in the failures of large upper and lower gates directly at the lock chambers.
2. **Poor expert control system** resulting in an unsafe manipulation with the water flows in terms of navigation limiting the navigation depths at the shallow points. It also includes unreliable flow and level measurements at important sites and profiles (consumption curves in managing profiles, capacity curves of weirs).
3. **Poorly sealed subsoil and expansion joints** in the construction of the locks - flowing water in the subsoil endangers the stability of the entire locks by scouring fine particles, formation of cavities and causing - subsidence, shifts and deformations. Degraded areas in the locks subsoil should be remedied (required identification of the degraded area, extent and subsequent filling by a sealant). It is required to seal the space between the filling object of the locks and the wall connecting the power plant and lock chamber.



*Example of the Damage to the Upper Gate Caused by a Ship Collision.*



*Example of the Damage to the Lower Gate (Inappropriate Material Wear) from the Late 90s.*

Due to the discontinuous operation of the Gabčíkovo locks, safe and reliable navigation was not provided on the Slovak stretch of river Danube. Hence **the Work Plan of the European Coordinator for the Rhine-Danube Corridor defined the Gabčíkovo locks as one of the most critical bottleneck for the Corridor's development, its proper functioning is an indispensable pre-condition.**

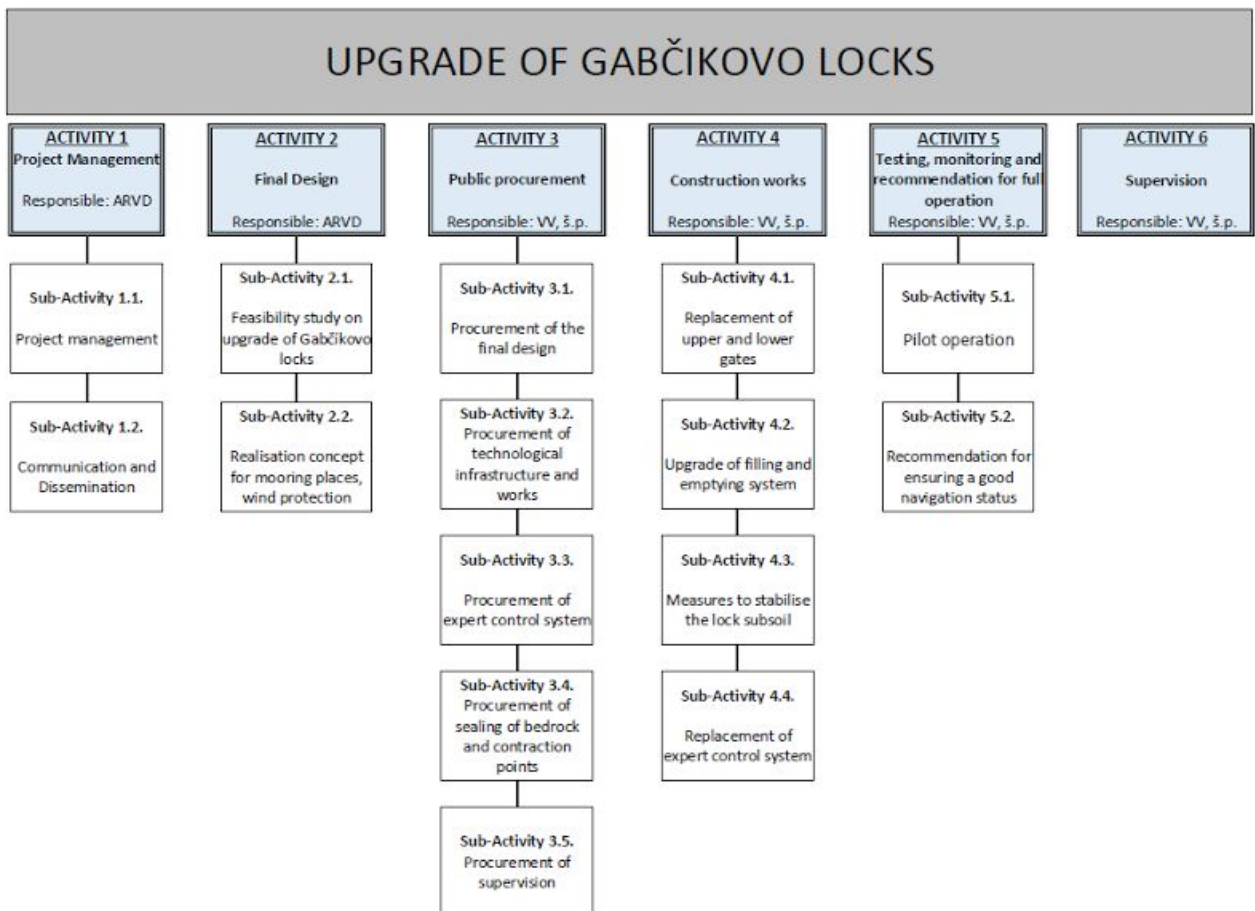
Since the "Upgrade of Gabčíkovo locks" deals with the most pressing issue on the Slovak stretch of the river Danube, **it is necessary to make complex upgrade of both locks of Gabčíkovo.** Subsequently, at the end of the project, the Gabčíkovo water structure will **be able to provide continuous and stable navigation conditions and ensure a safe passage through the locks.** Today the time needed for shipping through both of the Gabčíkovo locks is in average 45 minutes. By implementation of the action this time might be reduced at least by half (app. 20 minutes), in addition unexpected downtimes have blocked the entire Danube to a significant percentage during the last two years (16 days in 2012, 14 days in 2013 and 29 days in 2014).



Providing a **good navigation status** is one of the main objectives within **the global project of the “waterway network within the multimodal Rhine - Danube TEN-T Core Network Corridor”**. The “Upgrade of the Gabčíkovo locks” contributes substantially to the achievement of this goal. Extensive downtimes due to repair works and the operation of only one lock chamber at a time and repeated complete closures led to significant delays in inland waterway transport. In order to make this environmentally friendly mode of transport more competitive an upgrade of the locks and a revised operational concept has long been requested by shipping companies.

Economically viable cargo services on the Danube river and its navigable tributaries are highly dependent on stable and sufficient fairway conditions. By improving fairway conditions and by subsequently improving competitiveness of Danube navigation, the upgrade of the Gabčíkovo locks aims to **take advantage of the full potential of the Danube navigation** to support the growth of industrial activity and the creation of jobs in the Danube Region.

## 2 Project Activities







## 2.1. Activity 1: Project Management

Project Management deals with monitoring and management of technical progress resources and quality of the project results. A **project management structure** was established in order to ensure the awareness related to the tasks and responsibilities of all involved parties.

The **coordination with** the INEA as well as with relevant public and private partners will raise the acceptance and effectiveness of the planned activities. The **dissemination** of project related information also keeps parties up-to-date, which are not directly involved in the project.

## 2.2 Activity 2: Final design

This activity builds on the available pre-feasibility study and consists of a detailed feasibility study on the Upgrade of Gabčíkovo locks and a realisation concept for mooring places and wind protection. Main objective of this Activity is to describe in detail the most sustainable solution for upgrading locks. The study will aim at technical solutions of parts of Gabčíkovo locks which were recommended to modernisation and will also pointed out on indirect improvement of navigation within the proposed solution. Secondly this activity will provide investigation of the need of potential mooring places, additional measures, elaboration of a realisation concept including receiving all of necessary permits.

## 2.3 Activity 3: Public procurement

Technical specification which is needed for delivery of tender documentation will be prepared by the independent experts.

All the public procurements and procurement procedures will be executed through the procurement authority and with the cooperation with legal experts and will be conducted in adherence to the obligation and basic principles stipulated in the relevant legislation, especially with respect to the following basic principles: fair competition, equal opportunities and equal treatment and the reasonable, efficient and responsible usage of funds.

## 2.4 Activity 4: Construction works and implementation

In terms of safety, capacity and reliability of the navigational traffic through the Gabčíkovo locks it is possible to identify 6 areas of remedies:

1. replace upper and lower gates on the Gabčíkovo lock chambers,
2. restore the filling and emptying system of the Gabčíkovo locks, including technologies in order to achieve the fastest possible filling and emptying of the locks while minimizing loads on parts of the filling system,
3. replacement of upper flap gates,
4. replacement of dynamic protection of the gates,
5. seal the subsoil and expansion joints of the Gabčíkovo locks in order to increase the reliability and structural safety of the lock chambers,
6. design and implement expert control system which will avoid any risk to ships resulting from a limited fairway parameters or incorrect manipulation with flow rates and levels.

All supervision works will be provided.



## 2.5 Activity 5: Testing, monitoring and recommendation for full operation

The action prepares for the full implementation of the Expert Control System which will provide for a safe passage of vessels on the section of the Danube, affected by the Water Structure Gabčíkovo (including Gabčíkovo locks) operation.

## 2.6. Activity 6: Supervision

The objective of this Activity is to ensure the correct execution of all tasks detailed in the works contracts signed between the beneficiary's implementing body in charge of implementing Activity 4 – Construction works and the contractor(s).

## 3 Project Partners

The applicant of the action is the Ministry of Transport and Construction of the Slovak Republic which nominated following organisation in charge of implementing the action:

- ARVD – Waterborne Transport Development Agency,
- VV, š.p. – Vodohospodárska výstavba, štátny podnik – owner of Gabčíkovo locks.

Each Activity will be coordinated by an implementing body. Each activity leader is responsible for the efficient management and coordination of the Activity's tasks:

Activity 1 – Project management – Agentúra rozvoja vodnej dopravy,

Activity 2 – Final Design – Agentúra rozvoja vodnej dopravy,

Activity 3 – Public Procurement – Vodohospodárska výstavba, š.p.

Activity 4 – Construction works – Vodohospodárska výstavba, š.p.

Activity 5 – Testing, monitoring and recommendation – Vodohospodárska výstavba, š.p.

Activity 6 - Supervision – Vodohospodárska výstavba, š.p.

## 4 Budget

**Project volume:** 144 665 000 €

**CEF-co-financing:** 122 965 000 €

## 5 Time schedule

**Project Start:** 02/2016

**Project Closure** 12/2020