Good practice manual on inland waterway maintenance

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Continuous maintenance is key for competitive waterway infrastructure. In many countries however, the small "everyday" maintenance work does not get the attention it needs. This situation has even been acknowledged by the European Court of Auditors. However, there is a lot of potential to increase the efficiency and effectiveness of waterway maintenance.

Platina 2 fosters knowledge exchange on inland waterway maintenance on a European scale. It set up a European expert platform for waterway maintenance and prepared a "Good Practice Manual on Inland Waterway Maintenance" for waterway administrations.

Good Practice Manual on Inland Waterway Maintenance

The focus of this manual is on fairway maintenance (navigational) of free-flowing rivers. Its target group is European waterway administrations. What does the manual contain?

- ☐ It illustrates an improved fairway maintenance cycle.
- ☐ It exchanges dedicated knowledge across countries and corridors.
- ☐ It analyses examples from practice and identifies "lessons learned".
- ☐ It develops recommendations for efficient fairway maintenance.

This work was supervised by the Platina 2 European expert platform. They proofread the draft and contributed examples. This Good Practice Manual and documentation provided by the expert platform will be available to download on www.naiades.info > infrastructure.

Fairway maintenance cycle – a simple but efficient concept

These are the main elements of the Good Practice "Fairway Maintenance Cycle":

- ☐ The single elements of maintenance shall be structured in a recurring cycle.
- ☐ This cycle enables a continuous improvement process.
- ☐ A multidisciplinary horizon ensures that further uses of rivers are taken into account.
- ☐ A pro-active strategy calls to act before the situation gets critical, based on good information basis.
- ☐ Minimum levels of service (targets) shall be defined as well as Performance Indicators to measure their degree of achievement.
- ☐ Based on the defined targets, available resources and maintenance strategy, critical sections and activities are prioritised.

Three examples of the selected Good Practices are described below.

Good practice Serbia - Planning

PLOVPUT (Directorate for Inland Waterways, Serbia) developed a support tool for management decisions within waterway maintenance. It consists of:

- ☐ An integrated database (hydrographic & hydrological data, defined targeted levels of service for specific stretches – fairway width, depth).
- ☐ An optimisation algorithm that identifies the most efficient and effective measure to reach defined targets against the background of restricted resources.
- ☐ A number of options such as fairway realignment, traffic regulations, dredging (m³),…
- ☐ Parallel provision of integrated information on fairway availability to users.
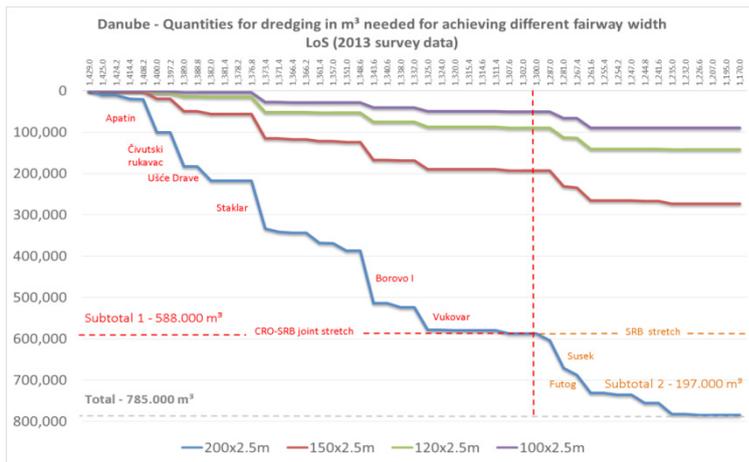
Source: PLOVPUT

Good Practice: DE/NL - Stabilisation of the Rhine riverbed along the state border

The riverbed on the Lower Rhine along the German/Dutch border had shown strong degradation. This led to a cooperative cross-border project with mutual benefits and equally shared cost (start 2012) between the riparian countries Germany and The Netherlands.

- ☐ The German "Wasser- und Schifffahrtsamt" stabilised the Rhine riverbed on Dutch territory (Spijk area) (completed).
    - ▪ ~430.000 t of material (limestone, basalt) was built in.
    - ▪ "Catherina 6": a vessel equipped with a harrow levelled the riverbed.
    - ▪ Constant surveying for impact assessment and activity planning.
    - ▪ The project also reduced flood risks.
- ☐ Rijkswaterstaat (NL) is to start bed load supply (gravel and sand) on German territory (Lobith area) to balance the bed load deficit in 2016.

Good Practice Austria: Navigability Analysis of the Danube

viadonau (Austrian Waterway Management Company) carried out a long-term analysis of daily water level ranges at two critical reference gauges - Pfelling (DE) and Wildungsmauer (AT) since 1981. This data was the basis for an advice tool for industry and logistics to support transport planning in line with the statistically most probable fairway conditions. On waterways with highly fluctuating water levels, the full potential of the possible draught of a vessel is often not used. Safety margins are kept due to uncertainties on the available fairway depth.

- ☐ The tool indicates the probability of high or low water levels throughout the year.
- ☐ It indicates the probability of available fairway depth and draught for each month in relation to vessel and cargo type.
- ☐ It is an easy-to-handle decision support tool for the industry and provides solid economic arguments to integrate inland waterway transport into logistic chains.
- ☐ viadonau has received very good feedback form the users of this tool.

Next steps

We also identified further topics that need to be discussed, e.g. lock maintenance, long-term analysis of measures, interplay of structural & maintenance measures…; these are listed in the manual as well.

Parts of the manual will be further developed within a study on the "Specification of Good Navigation Status" (1/2016 – 12/2017).

Questions and Answers

Comment: An integrated approach bears fruit. Waterway maintenance goes further than only dredging. There are lots of stakeholders involved. If you cooperate, you can have better results.

Q: We suggest to take up the topic of lock maintenance in particular, as this is a key topic in the future. Furthermore, we suggest to take up the topic of financing of maintenance. In France, VNF is in cooperation with the regions regarding co-financing.

A: We are open for suggestions, as we want to provide a manual that is of practical use for the waterway administrations.