

WORKING ON THE BENEFICIAL USE OF DREDGED SEDIMENTS: PERSPECTIVES FROM DOCTORAL STUDIES

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Abstract

Dredging of sediments is an activity that is gaining more importance worldwide since several places require the practice of securing water bodies, not turning them into wetlands. Therefore, high volumes of dredged material are extracted and require proper management. Landfilling and open ocean disposal can be avoided by implementing beneficial uses of dredged sediments. The material can be employed in construction, art, land reclamation and soil conditioning, among others. The doctoral thesis “Sustainable management of dredged sediments: potential recovery of valuable compounds” aimed to increase the knowledge towards the sustainable management of dredged material. The study focused on Malmfjärden bay, located in Kalmar, Sweden, under the LIFE SURE project, which aimed to develop an environmental-friendly dredging technique and implement beneficial uses for the obtained dredged material. The work included the contribution of several stakeholders, transforming the study into transdisciplinary work. The most important experiences of the study were the successful development and implementation of a complete monitoring plan for the dewatering system of the LIFE SURE project and the performance of several experiments. The tests included the use of sediments as plant-growing substrates and the chemical extraction of metals using chelating agents. The lessons learned from the study were the importance of finding added value to materials that want to be used in a circular economy perspective. Moreover, interaction with stakeholders helps to understand the perspective of different actors and to gain their support is crucial to secure the successful implementation of projects. Future studies could focus on pilot and full-scale projects on implementing beneficial uses of sediments, like using the material in farmlands or eroded lands as a soil conditioner.

Keywords: dredging, sediments, monitoring, interdisciplinary work, recovery, circular economy