Geophysical Research Abstracts,
Vol. 10, EGU2008-A-11473, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-11473
EGU General Assembly 2008

Polluted sediment management: from logistic optimization to decision making

O. Blanpain, G. Goncalves, **E. Masson**

(1) Lab. TVES EA 4019, UFR Geography, University of Sciences and Technologies of Lille, France (eric.masson@univ-lille1.fr). (2) Lab. LGIAA, University of Artois, France.

In the heavy modified waterbodies (i.e. inland waterways, seaports, urban streams) pollutants are accumulated into fine sediments. This situation is an increasing environmental issue regarding to the sediment life cycle and the need of infrastructure maintenance. Thus the water framework directive gives the objective to reach a good ecological status then polluted sediments have to be removed from waterbodies. These sediments are usually confined in order to stop the environmental impact of pollutants but recent works in civil engineering demonstrate that it is possible to add these depolluted sediments into the cement and the concrete matrix at an industrial level. This solution is a second option to manage polluted sediments that introduce a neo-material in the very competitive concrete industry.

This option is however possible only with a positive balance between the various variables of direct and indirect costs (i.e. extraction, dredging, transport, treatment, storage, environmental impact...) and the awaited benefit (i.e. economic and environmental).

This communication presents the methodology elaborated within a multidisciplinary team (geography, civil engineering, applied computer sciences) and first results (i.e. system analysis and conceptual modelling). It aims to develop a decision support system to optimize the re-use of polluted sediments by using a Life Cycle Analysis for the two materials (i.e. natural and polluted sediment) and to model a logistic device (i.e. transport, production and treatment sites) within a Geographical Information system (GIS). Another objective of this research program is to evaluate the impact of

environmental values of depolluted sediment for various actors (i.e. institutional and professional decision makers) and population of the NPDC region (northern France).