

Call of papers

Special issue of the European Journal of Civil Engineering

On

« Sediments »

Overview:

Many serious problems of pollution are linked to civil engineering and concern soil, water and air. Some of them date back several years ago (soil contamination, water table pollution, industrial waste...) and are sometimes caused by accidents (contamination by a polluting substance, etc.). Without neglecting the exorbitant costs which may result from these problems, the consequences could be disastrous, causing both health and environmental crises.

Amongst the problems that for a long time have affected several countries, that of the silting up of ports, river and estuaries, by sediments and sludge, can be mentioned. Currently, hundred of million of m³ of sludge and sediments are dredged each year in Europe. This large volume represents both an economic and an ecological problem. Firstly, this silting effect slows down the development of river and port activities: the dredging of ports, river and estuaries is a necessity to aid navigation and is regularly carried out. On the other hand, the sediments pollute the river and marine environment with a seriously negative effect on biomass.

These polluted sediments contain both organic (e.g. hydrocarbons, PAHs, PCBs...) and inorganic (e.g. heavy metals: Cd, Cr, Cu, Hg, Pb, Nitrates, Phosphates, Salts, etc.) contaminants. The pollution of these sediments is linked to the industrial history of the region. Heavy metals can be retained by soils and can also be mobilised in soil solution by biological and chemical mechanisms causing serious damage not only on human health but also on the flora and fauna.

Currently, many process of treatment exist and are proposed in literature but the economic cost of these solutions is not very competitive (large volume and heavy pollution). Moreover, the owners and managers of polluted sediments do not want to take on any legal risks or additional ecotoxicological problems until the legal status of sediment in European is clearly defined or specified. The lack of reference values for the main pollutants depending on the origin medium and its processing remains a major handicap for the classification of these polluted sediments but also for the study of the effectiveness of any treatment process. Until recent years, storage, and immersion were the only paths for disposal proposed for these polluted sediments. However, these solutions are not accepted by the public (NIMBY) because they do not solve the problem but they only move it in time or in space.

Indeed, the action consists, firstly, to prevent the consequences of polluted sediment toxicity (waste) and secondly to reduce production of the latter to the source. We are faced with a problem of industrial ecology that should be considered in its entirety, taking into account the sediment from production, extraction, characterisation to recovery. The articles proposed for this special issue may relate to theoretical, methodological or applied research. Particularly welcome, articles that synthesize the state of the art of the problem of polluted sediment, treatment process, new developments, comparative studies and industrial or in situ applications.

Topics:

Topics of special interest, although not limited to the ones below, are:

- Chemical, environmental and physical characterisation of sediment,
- Study of the behaviour of pollutant in sediment,
- Treatment of polluted sediment,
- Valorisation of polluted or treated sediments,

- Management of sediments,
- Study of problematic of water linked to sediments,
- Case studies, experimental investigation.

Submission & Review instruction:

We consider both articles written in English or French. Submissions must be directly sent via email to Guest Editors. The submission deadline is 30 June 2008. Paper submissions must conform to the layout and format guidelines of the EJCE. Instructions for Contributors are in: <http://www.revuesonline.com> . The Special Issue is scheduled for publication in 2009.

Guest Editors:

Zoubeir LAFHAJ, Ecole Centrale de Lille, LML, E-mail : zoubeir.lafhaj@ec-lille.fr

Bernard HUSSON, INSA de Toulouse, LMDC, E-mail: bernard.husson@insa-toulouse.fr