

pace and especially hydropower construction is starting to boom in upstream countries, especially in Lao PDR and China. The impacts on the downstream sediment balance, by trapping the sediments in reservoirs, might be severe. Thus, it is highly important and timely to enhance the understanding of the present sediment dynamics in order to be able to predict the possible future impacts.

This paper aims to analyse the suspended sediment dynamics at the Lower Mekong floodplains in Cambodia downstream from Kratie based on the data from extensive field work during the last years, Mekong River Commission database and other relevant sources. Moreover, the upstream development impacts on the sediment balances are discussed and briefly analysed.

Assessment of shellfish farming ecosystem contamination due to watershed disturbances: the cases of Le Croisic and the Auray River (France)

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The European Union legal framework for shellfish water quality refers to the Directive 2006/115/CE. This Directive is based on the Water Framework Directive which specifies the use of an integrated approach for watershed management in order to reach a good chemical and ecological status of groundwater, surface and estuarine waters by 2015. The impacts of watershed disturbances are more and more blamed to contaminate shellfish farming ecosystem. These contaminations could be due to non-point source pollution including animal manure spreading or just flawed treatments of sewage. Therefore, it seems to be critical to use an integrated approach to study these processes. The aim of this study is to assess an integrated approach using the agro-hydrological model SWAT (Soil and Water Assessment Tool) in order to make a spatial analysis of pollutant transfers from the watersheds to the coastal waters. This method has been experimented on two shellfish farming areas on the west coast of France which are confronted to recurring problems of

deterioration of their coastal water quality.

The physically based model SWAT, developed by the Agricultural Research Service of the United State Department of Agriculture to predict the impacts of land management practices in large heterogeneous watersheds (Neitsch et al., 2002; Di Luzio et al., 2002), has been implemented on the different sub-watersheds of both areas to simulate the pollutant flows (mainly nitrogen, phosphorus, pesticides and bacteria). To calibrate and validate the different simulations, the simulated outputs have been compared to the water samplings from the monitoring gages. According to the Nash and Sutcliffe efficiency criterion (Nash and Sutcliffe, 1970), the simulated pollutant concentrations and flows are close to the measurements. Indeed, depending on which simulation, but the efficiency criteria range from 0.67 to 0.98. The simulations enabled to determine the sub-watersheds which contributed the most to the coastal water eutrophication and to the bacteriological pollution of these shellfish farming areas. Therefore, it is now possible to suggest priority areas of intervention for the actions of restoration of the coastal water quality. In a near future, this modelling tool is expected to be coupled with a hydrodynamic model in order to predict the dispersion of the pollutants in the coastal waters and to realise prediction scenarios with practice modifications on watersheds.

References

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Role of discharge regulation and over population on hydrochemistry and total loading of the Nile River and its estuary to Mediterranean Sea

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