

Editorial

From Dredged Material Management to Sediment Management

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Many water and port managers face the continuous effort of dredging in order to maintain the needed water depth. Due to the virtue of having open connections to rivers, lakes and seas, suspended particles in the water and bedload transport settle at places with low currents. Complicating to this continuous dredging is the fact that the dredged material may be contaminated to a level that will restrict its use or relocation. So far this problem has predominantly been treated as a local problem. In general, it is then concluded that sedimentation is a fact of life and that the sources of the contamination are numerous, historic, and not to be tackled. The managers are left to solve their problem themselves, which is usually performed on a case by case basis. Finding a place to put it in somebody's backyard or a costly disposal site, or they are obliged to use expensive technology to immobilise or remove the contamination. And the dredged material manager pays the cost. The polluter's pay principle is far from being applied. The problem is for the problem owner and there is no link to those that have caused it.

The reason for this situation is that the regulations very much focus on how to deal with the dredged material as a local end of pipe problem. That the same risk is present when nature moves and relocates the sediment seems to be of another order and is not in focus. The problem starts when you pick it up and, as soon as you do, you become the problem owner. In essence, however, the problem was already there and when you solve only the part that needs to be dredged you do not solve it all. Next to that, it is an end of pipe solution. If you do not manage the cause of the problem it will remain and the next time you need to dredge, so that the same situation may occur again.

This is exactly the reason why the thinking should shift from dredged material management to sediment management. To manage the cause of the local problem, it is first of all important to know where the sediment originates and what the dynamic processes are that transport the sediment to the dredging site. And when contaminated, the same should be carried out for the contaminants.

The port of Rotterdam has adopted this shift in thinking because the port had to deal with enormous amounts of contaminated sediment that came along with the river that links the port to its hinterland: the river Rhine. Knowledge was developed on the contaminant sources and the pathways. Based on that knowledge, agreements on the reduction of the input of contaminants up to 90% were made with parties that discharged polluted effluents into the river and its tributaries, upstream as far as into Switzerland. Also awareness campaigns were organised to involve other stakeholders. To make them understand the relation between their behaviour in the Rhine catchment with regard to diffuse sources of pollution and the ecological status of the river, the North Sea and, there, maybe the most favoured vacation spot in the Wadden sea estuary. It was explained that the link between those values is in the sediment. Water dilutes, but sediment accumulates and when it is contaminated the potential problem accumulates. Together with the efforts of the Rhine states, this approach has led to a very substantial reduction of the problem of contaminated dredged material in the port of Rotterdam.

But along with that the ecological situation in the Rhine, the North Sea coastal zone has improved significantly. Remaining is the problem of the diffuse sources in which the historic contamination, that is present in the Rhine basin, is a source that is becoming increasingly important. Even more now is the risk of extreme river floods that may wash the hidden pollution into the water system once again seems to have been underestimated in the past.

When the European Water Directive Framework came into force, it introduced the management of water on a river-basin scale. Respecting the fact that the elements in the system are connected and that efforts to maintain and improve the ecological status of waterbodies need to be co-ordinated on that scale, risk management should be carried out and priorities should be set on that scale. It makes no sense when a downstream manager is extremely precautionary while the upstream manager is very pragmatic and sets other priorities, or vice versa. Management constraints in the river basin and receiving coastal zone should be focussed on actions that are most effective on the scale of the river basin including that of the coastal zone. Then money is spent and environment is served most effectively.

It is expected that in the wake of the water in the Water Framework Directive, the sediment issue will appear more prominent on that agenda. Sediments and ecological status of water bodies are interconnected. Since Europe has a problem of historic contamination of sediments in all the developed areas and faces a lasting significant input of sediment, contamination due to diffuse pollutants needs to be understood in order to manage the associated risk. In line with the Water framework Directive, this urges the development of a European-integrated sediment management on a river-basis scale.

When that is adopted then it is only a matter of time for problems to be managed primarily at their origin in the catchment instead of end of the pipe at the receiving end. Certainly there is still a long way to go but it may be a relief for the frustrated, dredged material managers that are associated with and held responsible for a problem that really is the problem of the European society. And the character of its solution primarily depends on the agreed upon environmental values of the rivers, lakes, estuaries and seas, respecting the links between those values and the willingness to manage the potential risk in a sustainable manner.

To conclude, I would like to add that the management of contaminated sediment is just one driver for the need to manage sediment on a river-basin scale. The massive erosion of fertile top soils in different parts of Europe and the new thinking in flood control measures, as to accept controlled flooding of areas adjacent to the river, also has consequences for the sediment budgets. They are other drivers for integrated sediment management on a river basin scale. It may be clear that SedNet, the European Sediment Network, aims to serve as a network to promote this, and to develop strategies and knowledge and to exchange this information with and between stakeholders and scientists. And, last but not least, this information must be exchanged with the people in Brussels and at national levels that are responsible for the development and implementation of the relevant strategies and directives.