



Innovative Reuse of Dredged Material

www.mpasafepassage.org

Maintaining safe passage to and from the Port of Baltimore requires dredging an average of 4.7 million cubic yards of sediment annually from the Baltimore Harbor and its approach channels.

Finding placement sites for this volume of material has become a pressing challenge.

Placement of dredged material at open water sites in the Chesapeake Bay will be discontinued by state law after December 2010. Most dredged material is placed in containment facilities on land and adjacent to shorelines. Poplar Island, Hart-Miller Island, and Cox Creek are three unique sites that serve as destinations for dredged material. Poplar Island and Hart-Miller Island also restore valuable wildlife habitat in the Bay.

However, opportunities for these kinds of projects are limited and expensive. The Port will soon be facing a shortfall in placement capacity, especially after the operation will cease at Hart-Miller Island in 2009.

As a result, newer approaches to dredged material management have arrived on the scene. Known as “beneficial use” and “innovative reuse,” these practices have increasingly transformed dredged material into a resource to be used, rather than waste awaiting disposal.

What is Innovative Reuse?

In Maryland, innovative reuse refers to recycling dredged material so that it can be used in place of other raw materials—or in combination with them—for manufacturing, construction, and reclamation projects. (Beneficial use means using dredged material for environmental benefits, such as creating wildlife habitat and restoring eroded islands.)

Examples of innovative reuse include:

- Capping a landfill or brownfield
- Incorporating dredged material into lightweight aggregates
- Reclaiming lands impaired by sand, gravel, and coal mining
- Manufacturing bricks and blocks
- Enhancing degraded farm land
- Producing manufactured topsoil
- Creating fill for construction projects

Exploring Innovative Reuse

In 2001, the state’s Dredged Material Management Act named innovative reuse as one of the top priorities for the future management of dredged material. Against this background, the Maryland Port Administration formed a committee to explore and evaluate the options.

Dredged material was used as part of an innovative reuse demonstration project to prepare barley fields and farmland terraces in Anne Arundel County.



The committee released a 2007 report titled *Innovative Reuse of Dredged Material* (see www.mpasafepassage.com). The report recommends ways to examine which if any of the applications are viable in Maryland. It also asserts that innovative reuse could address at least 500,000 cubic yards of dredged material each year. The potential exists to increase that amount substantially.

Challenges for Innovative Reuse

Several hurdles must be cleared before innovative reuse can succeed in Maryland.

Sediment Quality: The Baltimore Harbor has long been home to heavy industry, shipbuilding, and manufacturing. It is also a transportation hub, a depot, and the collecting basin for major sewage, stormwater, and urban stream outfalls. All of these activities have left pollutants buried in the sediment.

Sediment in parts of the harbor that have been undisturbed for a long period of time often contains high levels of chemicals of concern. However, sediment in certain locations that have been dredged regularly, including parts of the harbor, is generally much cleaner. This is the combined result of less industrial activity and stricter environmental regulations.

Citizens and even scientists sometimes fail to distinguish between these variations in sediment quality, and they are reluctant to use harbor sediment in upland locations. National experts are currently conducting an independent review of the region's sediment data in order to better address concerns regarding potential reuse.

Regulatory Issues: Most if not all innovative reuse of dredged material would require approval from the Maryland Department of the Environment (MDE). Approval would be issued based on the potential impact of the projects. While MDE has not identified any major concerns in the array of applications suggested by the innovative reuse commit-

tee, navigating the permit process could still be a challenge for anyone interested in launching an innovative reuse project.

Public Acceptance: Dredged sediment begins as soil washed off the land. It is a recyclable material that has been used acceptably for years. However, the general public mistakenly views dredged material as nothing more than contaminated waste. Finding communities that will allow the use of dredged material near their towns or cities may require a significant outreach effort. The Maryland Port Administration hopes to find locations where both the Port and communities will benefit from such projects.

Cost: Some ports have had success with innovative reuse, but the economics are challenging. Drying, transporting, and blending dredged material with other components can add significant costs to the final product. In Germany, for example, a facility produced bricks from dredged material, but the customers couldn't afford to buy them.

Maryland is looking closely at ways to make innovative reuse affordable. Applications like the reclamation of mined land, in which the benefits are more apparent, may balance the increased cost. Vigilance in containing costs and maximizing the benefits will be essential for any innovative reuse plan.

What's Next?

The Maryland Port Administration is planning demonstration projects to explore how well a variety of vendors can launch and manage innovative reuse projects at a reasonable cost.

These demonstrations will hopefully address many questions regarding the challenges that lie ahead. Combined with the sediment quality review, they will advance the effort to ensure that innovative reuse becomes a permanent, acceptable, and affordable part of Maryland's dredged material management strategy. ■