

## The Baltic States

# From Sludge To Compost In Eastern Europe

Trends and practices in biosolids composting in Estonia, Latvia and Lithuania.

**Karsten Runge**

**OVER** the past few years, composting of biosolids has become very popular in some Eastern European countries. This trend started in Poland in the late 1990s (see "Past, Present and Future of Composting in Poland," *BioCycle* April 2002), with later development in countries like Estonia, Latvia and Lithuania. Those countries, also known as the Baltic States, belonged to the former Soviet Union before becoming independent in the early 1990s, and later joining the European Union (EU).

The existing wastewater treatment plants in the Baltic region did not meet the standards for wastewater treatment in the EU. A modernization process of facilities started in the 1990s, with financial support of the local governments and the EU. In 1999, the European Landfill Directive set parameters to ban organic wastes from landfills. Therefore, biosolids from sewage treatment became a big problem, as they could no longer be landfilled. This ban first led to the idea of separate storage facilities for biosolids, which were built quickly with the help of European money. However, this only alleviated the problem for a few years, until the facilities became completely full.



### Estonia

Realizing the limited nature of the storage facilities, the wastewater treatment companies started looking for a solution to the growing sludge problem. Among them was Tartu Veevärk ([www.tartuvesi.ee](http://www.tartuvesi.ee)), the municipal water and wastewater treatment company in Tartu, Estonia, the country's second largest city. It started small-scale composting trials with bark, shredded green waste, peat and MSW to test windrow stability, turning frequencies and necessary composting time.

Tartu, Estonia (top), began a full-scale biosolids composting operation in 2002, after conducting successful small-scale trials with bark, shredded green waste, peat and MSW. Vilnius, Lithuania (above), composts 37,000 metric tons/year of biosolids.

"Results from these tests show optimum conditions for composting sludge using bark, wood chips or shredded green waste as bulking material, whereas straw is also useful but needs to be added in large amounts," says Jüri Haller, head of the laboratory at Tartu's wastewater treatment plant. "This led us







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to a full-scale operation, starting in 2002 with a rental windrow turner. In 2006 we purchased our own BACKHUS 16.50 windrow turner, and now we can turn the windrows more frequently, which helps decrease the time needed to get the product ready for delivery."

## Latvia

Riga, the capital of Latvia, got the idea to compost sewage sludge and wood processing residues in the mid 1990s. At that time, using woody biomass for energy purposes was not as common as it is now, and how to manage it was a more significant problem than managing the sludge. "This means that piles of sawdust around wood processing facilities, even in Riga, were much bigger than piles of sludge around wastewater treatment plants," explains Andis Lazdins of the Latvian State Forest Research Institute "Silava" (LSFRI Silava). "Our first composting trials using sludge from wastewater treatment and sawdust from different sources were realized in 1997, in cooperation with our Research Institute and Riga Water. The visual quality of the product wasn't as good as planned, due to the use of inappropriate machinery to turn the sludge and sawdust. However, reduction of pathogens in the compost was excellent, chemical composition was good as well, and the results of fertilization trials demonstrated a significant increase in growing rate, both in poor forest soils and nurseries, where compost was used initially."

Composting continued along these lines until 2001, when Conti Chemicals (www.kompost.lv), located in Riga, took over operations, producing compost for sale in 2003. "We used front end loaders for turning the compost, with no further screening of the product," says Aleksejs Mamontovs, Compost Production Manager of Conti Chemicals. "Fresh sawdust and litter were used as bulking materials. Yearly production was a few thousand cubic meters. In 2005, we rented a windrow turner, which helped us significantly improve end product quality. In 2006, we bought the turner and started to provide windrow turning service in Latvia."

## Lithuania

The wastewater treatment plant in the city of Vilnius, the capital of Lithuania, has composted biosolids since 2005, pro-



cessing 37,000 metric tons of biosolids per year. The sludge composting operation is contracted out to the private company BIASTRAS, which bought all necessary equipment including a mobile Doppstadt grinder and a BACKHUS 16.50 windrow turner, renting an area near to the central wastewater treatment plant. After learning that green waste from parks and gardens would be a good material to compost with the biosolids, the business enlarged to offer a green waste hauling service, collecting from the park and garden departments of the city.

"Our composting site is the largest in Lithuania," notes BIASTRAS owner Stanislavas Tracevicius, a pioneer in composting since the early 1990s. "Since we started, we've had many visitors, not only from Lithuania, but from neighboring countries as well. It seems that everybody in the Baltic area who is involved in sewage treatment is interested in how to compost biosolids. We can show that our large-scale operation is working quite well, even in winter time, where we have to face snow, ice and low temperatures."

## Baltic Collaboration

The large interest in biosolids treatment opportunities led to an international meeting in April 2008, held in Sigulda, a town in the Riga region of Latvia. This meeting was a collaborative event of companies operating wastewater treatment facilities. Specialists from Latvia, Lithuania, Estonia, Poland and Germany exchanged information about their experiences in composting biosolids and agreed to hold a follow up meeting in 2009.

"We will now start composting our biosolids by ourselves," says Andis Dejus of Liepaja Udens, a municipal company running the wastewater treatment facility in the city of Liepaja, Latvia. "We will buy the necessary equipment, like a windrow turner, but need to learn composting practices. Exchanging information with other companies involved in the business will save us time and money, as well as lead to success."

*Karsten Runge is Product Manager, Plant Engineering for BACKHUS GmbH in Germany. He has worked on composting projects in Eastern Europe for almost 10 years and can be contacted at Karsten at karsten.runge@backhus.de.*



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